

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Psychological Problems and Its Associated Factors among College Students related to COVID-19 Pandemic Lockdown in Amhara region, Ethiopia; A Cross-sectional Study
AUTHORS	Woday Tadesse, Abay; Mihret, Setegn; Biset, Gebeyaw; Kassa, Ayesheshim

VERSION 1 – REVIEW

REVIEWER	Hjorthøj, Carsten Copenhagen University Hospital, Mental Health Center Copenhagen
REVIEW RETURNED	12-Nov-2020

GENERAL COMMENTS	<p>The authors have conducted a study on whether there are psychological problems related to COVID-19 among students within a narrow geographical location within Ethiopia. The study finds lower rates of such problems related to COVID-19 than previous studies, but VERY high overall rates of psychological problems that were not related to COVID-19. The authors also identify predictors of such problems. While interesting, I think there are some concerns that are perhaps not so much related to the study design but to the very high prevalence of psychological problems not related to COVID-19. I will provide recommendations in this regard below. There are also issues regarding the cross-sectional nature of the study, but since I find it more interesting to look at the general psychological problems rather than the COVID-19 related ones, I think this might eventually be of lesser importance than it currently is.</p> <p>The title should mention the setting, i.e. Ethiopia.</p> <p>The abstract should do the same, it mentions Dessie Town but not the geographical location of this town, which may elude many readers.</p> <p>The title talks about problems due to COVID-19 lockdowns. The problems that are COVID-19 related could be due to lockdowns, but also due to fear of contagion, having family members falling ill or losing their jobs, etc. etc.</p> <p>The abstract gives numbers regarding psychological problems, but these are numbers not related to COVID-19, i.e. not what the study sets out to investigate.</p> <p>The introduction claims a worldwide number of 7 million cases of COVID-19. This is HIGHLY underestimated; checking the numbers</p>
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	<p>today, I see 52.2 million confirmed cases worldwide. And this increases dramatically daily.</p> <p>The introduction talks about worldwide aspects of COVID-19. I would be more interested to know about the incidence etc. of COVID-19 in Ethiopia. I am no expert on this field, but I seem to recall that many African countries have comparatively low incidence rates of COVID-19 compared with e.g. European and North- and South American countries. This local incidence would be key to understanding the results from Ethiopia.</p> <p>The section on Study Variable in the methods: I am a little uncertain whether the students were explicitly asked whether their problems were related to COVID-19 or not. If yes, then that is excellent. If not, then that would mean that it is difficult to ascertain whether these numbers are higher than what would have been observed prior to the COVID-19 pandemic and lockdowns.</p> <p>The major problem lies with the overall prevalence of depression, which is assessed at 77.2%, whereas COVID-19 related psychological problems (including depression) is "only" at 16.2%. Assuming that none of the latter would have had depression otherwise, it still means that the baseline rate of depression among these students would be 56%. One should be very careful not to conclude wrongly on such data. This would seem to imply that these students are already nearly as depressed as they are likely to get. So the underlying population is perhaps so heavily depressed already that nothing you can throw at them will make them more likely to be depressed. This would mean that you can conclude nothing about COVID-19 from this study, but that you CAN conclude that there are MASSIVE problems with the psychological wellbeing of students in Dessie Town, Ethiopia, which should probably be given high priority. The authors do conclude the same, but I think this point will get lost to most readers since the paper set out to be about COVID-19. I would recommend rewriting the entire paper to make it explicit that you look at both psychological problems related and unrelated to COVID-19. And focus MUCH MORE on the problems that are not related to COVID-19.</p> <p>Incidentally, the use of the word "optimally" in regards to the high prevalence rates is incorrect. Optimally is a positive word, and I doubt this should be the case. There are also other problems with English language and the authors might consider having a native English speaker proofread the manuscript.</p>
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REVIEWER	Ho, Roger C. M. Natl Univ Singapore, Psychological Medicine
REVIEW RETURNED	05-Dec-2020

GENERAL COMMENTS	<p>I have the following comments for the authors to address and I need to review this paper again.</p> <p>1) Under Introduction, the authors mentioned "These include movement restriction, confinement to home and closure of the school, and other social services that lead to increased psychosocial stress among the community, especially students [9-17]". Please discuss about social distance and lockdown and refer to the following studies:</p>
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	<p>Tran BX, Nguyen HT, Le HT et al Impact of COVID-19 on Economic Well-Being and Quality of Life of the Vietnamese During the National Social Distancing. <i>Front Psychol.</i> 2020 Sep 11;11:565153. doi: 10.3389/fpsyg.2020.565153. PMID: 33041928; PMCID: PMC7518066.</p> <p>Le XTT, Dang AK, Toweh J, Nguyen QN et al Evaluating the Psychological Impacts Related to COVID-19 of Vietnamese People Under the First Nationwide Partial Lockdown in Vietnam. <i>Front Psychiatry.</i> 2020 Sep 2;11:824. doi: 10.3389/fpsyg.2020.00824. PMID: 32982807; PMCID: PMC7492529.</p> <p>2) The authors stated "A study conducted in Singapore revealed that 14.5%, 8.9%, and 7.7% of participants screened positive for anxiety, depression and stress respectively [20]." Reference 20 is: Liu N, Zhang F, Wei C, Jia Y, Shang Z, et al. Prevalence and predictors of PTSS during COVID-19 Outbreak in China Hardest-hit Areas: Gender differences matter. <i>Psychiatry research</i> 2020:112921.</p> <p>It is from China and not from Singapore.</p> <p>3) Under the method, please state the DASS-21 was used in other studies with different ethnic groups:</p> <p>Chinese and Poles: Wang C, Chudzicka-Czupala A, Grabowski D, et al. The Association Between Physical and Mental Health and Face Mask Use During the COVID-19 Pandemic: A Comparison of Two Countries With Different Views and Practices. <i>Front Psychiatry.</i> 2020;11:569981. Published 2020 Sep 9. doi:10.3389/fpsyg.2020.569981</p> <p>Vietnamese: Le HT, Lai AJX, Sun J, et al. Anxiety and Depression Among People Under the Nationwide Partial Lockdown in Vietnam. <i>Front Public Health.</i> 2020;8:589359. Published 2020 Oct 29. doi:10.3389/fpubh.2020.589359</p> <p>Filipinos: Tee ML, Tee CA, Anlacan JP et al . Psychological impact of COVID-19 pandemic in the Philippines. <i>J Affect Disord.</i> 2020 Aug 24;277:379-391. doi: 10.1016/j.jad.2020.08.043. Epub ahead of print. PMID: 32861839.</p> <p>4) Under discussion, the authors stated In this study, the overall psychological problem of COVID-19 among college students was 16.2%. Please compare the findings with the following meta-analysis:</p> <p>Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review [published online ahead of print, 2020 Aug 8]. <i>J Affect Disord.</i> 2020;277:55-64. doi:10.1016/j.jad.2020.08.001</p> <p>5) The authors should talk about psychotherapy to treat psychological problems. Please discuss the following:</p>
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	<p>The use of cognitive behavior therapy during COVID-19: Ho CS et al Mental Health Strategies to Combat the Psychological Impact of COVID-19 Beyond Paranoia and Panic. <i>Ann Acad Med Singapore</i>. 2020;49(3):155-160.</p> <p>This study talk about internet CBT that is very relevant for COVID-19: Zhang MW et al Moodle: The cost effective solution for internet cognitive behavioral therapy (I-CBT) interventions. <i>Technol Health Care</i>. 2017;25(1):163-165. doi: 10.3233/THC-161261. PMID: 27689560.</p> <p>Internet CBT can treat insomnia: Soh HL et al Efficacy of digital cognitive behavioural therapy for insomnia: a meta-analysis of randomised controlled trials. <i>Sleep Med</i>. 2020 Aug 26;75:315-325. doi: 10.1016/j.sleep.2020.08.020. Epub ahead of print. PMID: 32950013.</p> <p>6) Under limitations, please add the following limitations:</p> <p>This study mainly used self-reported questionnaires to measure psychiatric symptoms and did not make clinical diagnosis. The gold standard for establishing psychiatric diagnosis involved structured clinical interview and functional neuroimaging (Husain et al 2020, Ho et al 2020).</p> <p>References: Husain SF, Yu R, Tang TB, et al. Validating a functional near-infrared spectroscopy diagnostic paradigm for Major Depressive Disorder. <i>Sci Rep</i>. 2020;10(1):9740. Published 2020 Jun 16. doi:10.1038/s41598-020-66784-2</p> <p>Ho CSH, Lim LJH, Lim AQ, et al. Diagnostic and Predictive Applications of Functional Near-Infrared Spectroscopy for Major Depressive Disorder: A Systematic Review. <i>Front Psychiatry</i>. 2020;11:378. Published 2020 May 6. doi:10.3389/fpsy.2020.00378</p> <p>This study is a cross-sectional study and please discuss findings of the following longitudinal study:</p> <p>Wang C, Pan R, Wan X, et al. (2020b) A Longitudinal Study on the Mental Health of General Population during the COVID-19 Epidemic in China [published online ahead of print, 2020 Apr 13]. <i>Brain Behav Immun</i>. 2020; S0889-1591(20)30511-0. doi:10.1016/j.bbi.2020.04.028</p>
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REVIEWER	Liu, Weizhi Naval Medical Research Institute
REVIEW RETURNED	14-Dec-2020

GENERAL COMMENTS	This study revealed the level of anxiety, stress, and depression disorders among college students and find out the independent predictors of psychological problems among students. Another point worth mentioned is that psychological problem among students was measured using the co-existence of all of anxiety, stress and depression.
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	<p>Although this paper has some innovations, there are still some limitations which will be described below:</p> <ol style="list-style-type: none"> 1. The author only completed a pretest on a small sample for the scale (DASS-21). So how is the cut off for distinguishing normal, moderate, and severe determined? Is there a corresponding local norm or basis? 2. Data analysis was inadequate. We noticed that the score of DASS-21 were divided into three parts: depression, anxiety and stress, but in data analysis, only the result of the overall psychological problem is used. Why is there no analysis about each disorder? 3. In the part “Determinants of Psychological Problems among Students during COVID-19” (Page 12), the author stated that sex of participants was not significantly associated with the psychological problems, but the results in Table 2 was different. This need to be corrected. 4. In Table 2, the data of “Absent (%)” in the line of “Attitude towards COVID-19”, the parenthesis was missing.
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Carsten Hjorthøj, Copenhagen University Hospital

Comments to the Author:

- The authors have conducted a study on whether there are psychological problems related to COVID-19 among students within a narrow geographical location within Ethiopia. The study finds lower rates of such problems related to COVID-19 than previous studies, but VERY high overall rates of psychological problems that were not related to COVID-19. The authors also identify predictors of such problems. While interesting, I think there are some concerns that are perhaps not so much related to the study design but to the very high prevalence of psychological problems not related to COVID-19. I will provide recommendations in this regard below. There are also issues regarding the cross-sectional nature of the study, but since I find it more interesting to look at the general psychological problems rather than the COVID-19 related ones, I think this might eventually be of lesser importance than it currently is.
- The title should mention the setting, i.e. Ethiopia.

Responses: the authors were not interested to investigate the level of psychological problems that were not related with COVID-19 rather we were limited our research questions whether or not the college students experienced any psychological problems due to their confinement at home.

However, we were obligated to be limited into one region because of the national lockdown that prohibited the movement of anybody from place to place including the researchers. This was the main reason to conduct this study in limited setting, Amhara region.

- The abstract should do the same, it mentions Dessie Town but not the geographical location of this town, which may elude many readers.
- The title talks about problems due to COVID-19 lockdowns. The problems that are COVID-19 related could be due to lockdowns, but also due to fear of contagion, having family members falling ill or losing their jobs, etc. etc.
- The abstract gives numbers regarding psychological problems, but these are numbers not related to COVID-19, i.e. not what the study sets out to investigate.

Responses: the study included students who were learning at colleges located in Dessie and who were living around Dessie town. The study was intended to assess the psychological problems among the students that is related with COVID-19 pandemic but we were not interested to assess the psychological problems that happened before the pandemic. The figure stated in the abstract were psychological problems, in which the students experienced because of the emerging pandemic, COVID-19.

- The introduction claims a worldwide number of 7 million cases of COVID-19. This is HIGHLY underestimated; checking the numbers today, I see 52.2 million confirmed cases worldwide. And this increases dramatically daily.
- The introduction talks about worldwide aspects of COVID-19. I would be more interested to know about the incidence etc. of COVID-19 in Ethiopia. I am no expert on this field, but I seem to recall that many African countries have comparatively low incidence rates of COVID-19 compared with e.g. European and North- and South American countries. This local incidence would be key to understanding the results from Ethiopia.

Responses: the number of cases and deaths stated in the introduction does not represent the current situation of the cases. Because, the study was conducted from April 15 to May 15, 2020. Therefore, the stated figures does not under-estimate the current figure of COVID-19.

- The section on Study Variable in the methods: I am a little uncertain whether the students were explicitly asked whether their problems were related to COVID-19 or not. If yes, then that is excellent. If not, then that would mean that it is difficult to ascertain whether these numbers are higher than what would have been observed prior to the COVID-19 pandemic and lockdowns.

Responses: the authors need to reassure that the students were explicitly asked about the psychological problems they have experienced because of the pandemic, COVID-19.

- The major problem lies with the overall prevalence of depression, which is assessed at 77.2%, whereas COVID-19 related psychological problems (including depression) is "only" at 16.2% Assuming that none of the latter would have had depression otherwise, it still means that the baseline rate of depression among these students would be 56%. One should be very careful not to conclude wrongly on such data. This would seem to imply that these students are already nearly as depressed as they are likely to get. So the underlying population is perhaps so heavily depressed already that nothing you can throw at them will make them more likely to be depressed. This would mean that you can conclude nothing about COVID-19 from this study, but that you CAN conclude that there are MASSIVE problems with the psychological wellbeing of students in Dessie Town, Ethiopia, which should probably be given high priority. The authors do conclude the same, but I think this point will get lost to most readers since the paper set out to be about COVID-19. I would recommend rewriting the entire paper to make it explicit that you look at both psychological problems related and unrelated to COVID-19. And focus MUCH MORE on the problems that are not related to COVID-19.

Responses: the authors used conjunction of "AND" [Depression AND anxiety AND Stress] to calculate the overall prevalence of psychological problems among college students. This is the main reason that makes the overall prevalence of psychological problem to be lower (i.e. 16.2%) than the maximum (depression) and minimum (stress) of separated components of psychological problems

- Incidentally, the use of the word "optimally" in regards to the high prevalence rates is incorrect. Optimally is a positive word, and I doubt this should be the case. There are also other problems with English language and the authors might consider having a native English speaker proofread the manuscript.

Responses: this was typographical error and corrected in the main document of the revised version of the manuscript. The authors also exhaustively edited other grammatical edition. Thank you so much for you constructive and valuable comments!

Reviewer: 2

Dr. Roger C. M. Ho, Natl Univ Singapore

Comments to the Author:

I have the following comments for the authors to address and I need to review this paper again.

1) Under Introduction, the authors mentioned "These include movement restriction, confinement to home and closure of the school, and other social services that lead to increased psychosocial stress among the community, especially students [9-17]". Please discuss about social distance and lockdown and refer to the following studies:

Tran BX, Nguyen HT, Le HT et al Impact of COVID-19 on Economic Well-Being and Quality of Life of the Vietnamese During the National Social Distancing. *Front Psychol*. 2020 Sep 11;11:565153. doi: 10.3389/fpsyg.2020.565153. PMID: 33041928; PMCID: PMC7518066.

Le XTT, Dang AK, Toweh J, Nguyen QN et al Evaluating the Psychological Impacts Related to COVID-19 of Vietnamese People Under the First Nationwide Partial Lockdown in Vietnam. *Front Psychiatry*. 2020 Sep 2;11:824. doi: 10.3389/fpsyg.2020.00824. PMID: 32982807; PMCID: PMC7492529.

Responses: The authors revised the introduction section and incorporated the articles listed above. Thank you so much for you constructive and valuable comments!

2) The authors stated "A study conducted in Singapore revealed that 14.5%, 8.9%, and 7.7% of participants screened positive for anxiety, depression and stress respectively [20]." Reference 20 is: Liu N, Zhang F, Wei C, Jia Y, Shang Z, et al. Prevalence and predictors of PTSS during COVID-19 Outbreak in China Hardest-hit Areas: Gender differences matter. *Psychiatry research* 2020:112921.

It is from China and not from Singapore.

Responses: absolutely you are right and we corrected the wrongly listed study setting. We had corrected as China instead of Singapore.

3) Under the method, please state the DASS-21 was used in other studies with different ethnic groups:

Chinese and Poles:

Wang C, Chudzicka-Czupala A, Grabowski D, et al. The Association Between Physical and Mental Health and Face Mask Use During the COVID-19 Pandemic: A Comparison of Two Countries With Different Views and Practices. *Front Psychiatry*. 2020;11:569981. Published 2020 Sep 9. doi:10.3389/fpsyg.2020.569981

Vietnamese:

Le HT, Lai AJX, Sun J, et al. Anxiety and Depression Among People Under the Nationwide Partial Lockdown in Vietnam. *Front Public Health*. 2020;8:589359. Published 2020 Oct 29. doi:10.3389/fpubh.2020.589359

Filipinos:

Tee ML, Tee CA, Anlacan JP et al . Psychological impact of COVID-19 pandemic in the Philippines. *J Affect Disord.* 2020 Aug 24;277:379-391. doi: 10.1016/j.jad.2020.08.043. Epub ahead of print. PMID: 32861839.

Responses: Thank you for your valuable suggestions! We have included these sources in the revised version of the manuscript.

4) Under discussion, the authors stated In this study, the overall psychological problem of COVID-19 among college students was 16.2%. Please compare the findings with the following meta-analysis:

Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review [published online ahead of print, 2020 Aug 8]. *J Affect Disord.* 2020;277:55-64. doi:10.1016/j.jad.2020.08.001

Responses: the suggested article is considered in the revised version of the manuscript. Thanks for your suggestions!

5) The authors should talk about psychotherapy to treat psychological problems. Please discuss the following:

The use of cognitive behavior therapy during COVID-19:

Ho CS et al Mental Health Strategies to Combat the Psychological Impact of COVID-19 Beyond Paranoia and Panic. *Ann Acad Med Singapore.* 2020;49(3):155-160.

This study talk about internet CBT that is very relevant for COVID-19:

Zhang MW et al Moodle: The cost effective solution for internet cognitive behavioral therapy (I-CBT) interventions. *Technol Health Care.* 2017;25(1):163-165. doi: 10.3233/THC-161261. PMID: 27689560.

Internet CBT can treat insomnia:

Soh HL et al Efficacy of digital cognitive behavioural therapy for insomnia: a meta-analysis of randomised controlled trials. *Sleep Med.* 2020 Aug 26;75:315-325. doi: 10.1016/j.sleep.2020.08.020. Epub ahead of print. PMID: 32950013.

Responses: The authors of this study were interested to assess the level of psychological problems that may happened among college students because of the COVID-19 pandemic.

In particular; students who were at home due to the national school closures that was made by the national government to halt the spread of the pandemic.

6) Under limitations, please add the following limitations:

This study mainly used self-reported questionnaires to measure psychiatric symptoms and did not make clinical diagnosis. The gold standard for establishing psychiatric diagnosis involved structured clinical interview and functional neuroimaging (Husain et al 2020, Ho et al 2020).

Responses: the authors accept the stated limitations above. We have incorporated the raised concerns in the main document of the revised version of the manuscript.

This study is a cross-sectional study and please discuss findings of the following longitudinal study:

Wang C, Pan R, Wan X, et al. (2020b) A Longitudinal Study on the Mental Health of General Population during the COVID-19 Epidemic in China [published online ahead of print, 2020 Apr 13]. *Brain Behav Immun.* 2020; S0889-1591(20)30511-0. doi:10.1016/j.bbi.2020.04.028

Responses: this article is considered and discussed in the revised manuscript. Thank you so much for your constructive comments!

Reviewer: 3

Dr. Weizhi Liu, SMMU

Comments to the Author:

1. The author only completed a pretest on a small sample for the scale (DASS-21). So how is the cut off for distinguishing normal, moderate, and severe determined? Is there a corresponding local norm or basis?

Responses: The tool was pretested on 5% of samples other than selected colleges those found in Woldia town and some amendments were made based on the pretest findings. The main aim of the pretest was to check whether the participants easily understand the tool or not. Besides, the pretest was done to determine the time for a single questionnaire. However, this was not pilot study that needs adequate sample size.

Here, the scales were classified as normal, moderate, and severe for each psychiatric problems (DAS). However, we merged moderate and severe scales together in each psychiatric problems measurements since the values of moderate scales have a very minimal scores.

2. Data analysis was inadequate. We noticed that the score of DASS-21 were divided into three parts: depression, anxiety and stress, but in data analysis, only the result of the overall psychological problem is used. Why is there no analysis about each disorder?

Responses: the descriptive analysis was done for each of the psychological problems but final model was done for only psychological problem that was generated from the combination of the three main components of psychiatric symptoms (i.e. psychological problem= depression + anxiety + stress). This was also the main reason that makes the overall psychological problem low (16.2%).

3. In the part “Determinants of Psychological Problems among Students during COVID-19” (Page 12), the author stated that sex of participants was not significantly associated with the psychological problems, but the results in Table 2 was different. This need to be corrected.

Responses: this was typing error and it is corrected in the revised version of the manuscript.

4. In Table 2, the data of “Absent (%)” in the line of “Attitude towards COVID-19”, the parenthesis was missing.

Responses: in table 2, absent (%) was to mean No (%) and the parenthesis for attitude is corrected.

VERSION 2 – REVIEW

REVIEWER	Ho, Roger C. M. Natl Univ Singapore, Psychological Medicine
REVIEW RETURNED	06-Apr-2021

GENERAL COMMENTS	I recommend publication.
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REVIEWER	Liu, Weizhi Naval Medical Research Institute
REVIEW RETURNED	19-Apr-2021

GENERAL COMMENTS	This study revealed the level of anxiety, stress, and depression disorders among college students and find out the independent predictors of psychological problems among students. And the psychological problem among students was measured using the co-existence of all of anxiety, stress and depression. Although this paper has some innovations, there are still some limitations which will be described below:
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	<ol style="list-style-type: none">1. The Discussion is inadequate.2. It is forgot to bold and capitalize the Outcome in Abstract.3. There is missing of punctuation in the article.
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VERSION 2 – AUTHOR RESPONSE

Reviewer: 2

Dr. Roger C. M. Ho, Natl University Singapore

Comments to the Author:

I recommend publication.

Reviewer: 3

Dr. Weizhi Liu, Naval Medical Research Institute

Comments to the Author:

This study revealed the level of anxiety, stress, and depression disorders among college students and find out the independent predictors of psychological problems among students. And the psychological problem among students was measured using the co-existence of all of anxiety, stress and depression.

Although this paper has some innovations, there are still some limitations which will be described below:

1. The Discussion is inadequate.

Responses: The authors have exhaustively work on the discussion section to improve its shallowness and we have incorporated your concerns in the revised version of the manuscript.

2. It is forgot to bold and capitalize the Outcome in Abstract.

Responses: This is corrected in the revised section of abstract that appeared in the revised version of the manuscript.

3. There is missing of punctuation in the article.

Responses: The authors have extensively work on the correction of typographical errors throughout the revised document.