

We appreciate the reviewer's suggestions and comments. Before we respond to our revisions, we would like to show the certificate of proofreading from a native English speaker. This paper, including the revisions, was completed revised, and polished by Miss Roxanne Lee.

To Whom It May Concern:

This letter is to certify that I have proof-read the paper titled *"An Empirical Study for Senior Citizens Using a Customized Medical Informatics System for Dementia Diagnosis and Analysis"* by Hsu-Hua Ho, Jien-Jou Lin, Tzu-Yi Yu , and Jia-Qiao Gong. It has been edited to the best of my ability in terms of English grammar, punctuation, spelling, readability and usage.

I am a native English speaker with a B.S. degree in Environmental Science, with a minor in English from Simmons College in Boston. I also hold a Master's degree in Environmental Science and Policy from Northeastern University in Boston. I served as a writing tutor in the Graduate Student Writing Center at Northeastern University. I am currently a volunteer article writer for online science organization High Frontier Outpost, an English tutor at C2 Education, and a part-time Science Writer at the City College of New York.



Roxanne Lee

June 29, 2022

A. Fifth Reviewer: Comments and Suggestions for Authors

This research investigates some potential factors affecting the development of dementia diseases in rural areas. Chi-square test method is used to analyze the tracking information of 768 patients in a rural town in Taiwan. Please consider my comments for improving this paper.

1. There are indeed several editorial issues and English writing problems in this paper, which must be improved in the revised version.

Here, I list some found in the first page as illustrative examples, and the authors need to more carefully check throughout the paper before resubmitting a new version.

- Line 29: please add a reference for "This situation is also occurring world-wide", and add space between "2017[1]".

Ans: The polisher suggested removing "This situation is also occurring world-wide" as it sounds not a professional sentence. The space has added between 2017 and [1]. They are now in Line [29~30]. "The overall life expectancy for the U.S. population in 2018 was 78.7 years, an increase of 0.1 years from 2017 [1]."

- Line 33: "will lead" should be "have been leading".

Ans. The sentence has been revised as ", have resulted in a rise in the number ..." in Line [35].

- Line 37: "People living longer makes ... issue." must be rewritten.

Ans. The original sentence has been revised as "As people are living longer lives, the incident of aging becomes a worldwide issue." They are in Line [38~39].

- Line 38: "Aging populations ARE" or "Population aging".

Ans. It is revised. Thanks. It is in Line [40].

- Line 39: "In 2019 ...[3]." can be rewritten as "In 2019, ...[3] in Taiwan."

Ans. They are revised as "Aging populations are a problem in Asian countries as well as Western ones. Japan's life expectancy in 2019 was 84 years, whereas Taiwan's was 80.86 years [3]". They are in Line [40~41].

- Line 41: "diseases common" should be "common diseases".

Ans. They are revised as " , prevalent diseases in the elderly continue to emerge as individuals live longer lives." They are in Line [42~43].

- Lines [42-45]: "According to ... or higher." can be neat and clear by combining all information, and then using "respectively" instead of utilizing "is one in which" repeatedly.

Ans. Thanks. They have been revised as "According to the World Health Organization, an "aging society" has 7 % or more persons 65 years or older, an "aged society" has 14 % or more, and a "super-aged society" has 20 % or more, respectively." They are in Line [43~45].

... and more.

Ans. Thank you for the suggestions. These are all revised. As matter of fact, the introduction section has been revised along with other reviewers' suggestions.

The first two paragraphs of the introduction section are now:

"Human beings now live longer and healthier lives than in the past, thanks to advances in technology, medical equipment, and sanitation. According to the National Center for Health Statistics, which is part of the Centers for Disease Control and Prevention, the average life expectancy in the United States in 1900 was 46.3 years for males and 48.3 years for females. In 2018, the average life expectancy in the United States was 76.2 years for men and 81.2 years for women of all races. The overall life expectancy for the U.S. population in 2018 was 78.7 years, an increase of 0.1 years from 2017 [1]. According to a US CDC data study, there was a 20-year rise in average life span expectancy in the second half of the twentieth century - the world population's median age is rising. These factors, together with high fertility rates in many nations during the two decades after World War II, have resulted in a rise in the number of persons aged 65 and older between 2010 and 2030. The average life expectancy is predicted to rise by another ten years by 2050. The growing number of elderly people will place a burden on public health systems, as well as medical and social services [2]. As people are living longer lives, the incident of aging becomes a worldwide issue.

Aging populations are a problem in Asian countries as well as Western ones. Japan's life expectancy in 2019 was 84 years, whereas Taiwan's was 80.86 years [3]. It should be beneficial for individuals to live longer lives than they did in the past. However, prevalent diseases in the elderly continue to emerge as individuals live longer lives. According to the World Health Organization, an "aging society" has 7 % or more persons 65 years or older, an "aged society" has 14 % or more, and a "super-aged society" has 20 % or more, respectively. Taiwan and Japan are two Asian countries with major age-related problems. During the mid-twentieth century, the majority of Taiwanese inhabitants were youthful farmers. Approximately 2.5 percent of the population was above the age of 65. However, tremendous industrial expansion resulted in a considerable shift in the age demographics of the population. According to the Ministry of the Interior's population strategy white paper issued in 2013, Taiwan became an aging society in 1993, when more than 7% of the population was 65 or older. In 2018, Taiwan became an aged society, with over 14% of the population aged 65 or older [4, 5]. Furthermore, the National Development Council issued an alarm in 2014, stating that Taiwan's community has progressed from "aging" to "aged," and that by 2025, it would be a "super-aged" society, with 20~25 percent of individuals being older citizens. Possible causes of speedy aging in Taiwan include medical breakthroughs, a cleaner environment, and advances in science and technology, which increased average life expectancies. A low birthrate might be another hypothesis. This aging issue is not exclusive to Taiwan; it has also occurred in other Asian nations such as China and Japan. The research indicates that China's senior population will continue to expand for decades. The aging problem in China is so severe that it will require a coordinated effort by gerontologists, healthcare professionals, lawmakers, and societal forces [6]. The National Institute of Population and Social Security

Research (IPSS) of Japan predicts the present 120 million population will drop to less than 60 million in 100 years. Such severe population shifts affect government economic strategies and different industry areas [7].”

2. Towards Taiwan’s aging society in lines [50-53], what are the hypotheses behind the data of two time points in 1993 and 2018?

Ans: We have added the hypotheses, they are in Line [56~58].

Line [56~58]:

“Possible causes of speedy aging in Taiwan include medical breakthroughs, a cleaner environment, and advances in science and technology, which increased average life expectancies. A low birthrate might be another hypothesis.”

3. Line [55]: “with one in every four or five people being an older citizen”. Please clarify. Lines [56-57]: Please reference “This problem will not only...China and Japan”.

Ans: We have rewritten the sentence and clarified the meaning. This is in Line [55~56].

“with 20~25 percent of individuals being older citizens.”

Two references are added. They are in Line [60~65].

“The research indicates that China’s senior population will continue to expand for decades. The aging problem in China is so severe that it will require a coordinated effort by gerontologists, healthcare professionals, lawmakers, and societal forces [6]. The National Institute of Population and Social Security Research (IPSS) of Japan predicts the present 120 million population will drop to less than 60 million in 100 years. Such severe population shifts affect government economic strategies and different industry areas [7].”

4. A summary of your contributions must be presented in this paper to highlight the novelty of this research.

Ans. Thanks for the reviewer’s suggestion. Along with other reviewers’ requests, the new paragraph is added in Line [754~778].

“Dementia is a global malady with growing ramifications for society, the economy, and families. Many individuals have benefited from this cooperative research. The contributions of this study can be summarized as follows. The hospital was built to serve the economically disadvantaged citizens of this community. A single visit to this hospital costs about \$5 to \$8, in addition to medications and possible examinations. Some may be able to waive the cost if combined with National Health Insurance. The dementia patients we gathered are concentrated among the population of this small town and surrounding regions due to the hospital’s geographical position. Although urban residential areas may hold more dementia patients, they are not included in the scope of this study. Furthermore, studies on dementia risk factors have been conducted, with relatively few studies focusing on a specific group of patients. As a result, the trustworthiness of this study for the local residents of this area is quite high. We discussed our findings with academic institutions and relevant government agencies, and local governments started to build more long-term care facilities and develop daycare programs based on our findings. For instance, our research revealed a connection between education level and dementia severity. Because of poverty, loneliness, and a lack of social engagement, some dementia sufferers’ conditions have progressively gotten worse. The development of the daycare facility currently allows people with dementia to visit during the daytime and engage in carefully developed interactive activities, such as drawing classes, folk dance programs, or chess play. Furthermore, our research showed that dementia progresses more quickly in people residing in care facilities. The faculty of the care facility can notify the patient’s family ahead of time if the patient’s symptoms worsen. The family may anticipate and plan for all necessary safeguards ahead of time. This is extremely beneficial to the patients and their families. And through mutual discussion, software development engineers learned how to collaborate with hospitals to produce effective integration software.”

5. “This town”, “a town”, “small town”, is it possible to indicate where it is exactly?

Ans. We add the background of the hospital to clarify this problem. They are in Line [125~139].

Line [125~139] says:

"This research is a collaboration between academic institutions and hospitals. The history and purpose of St. Joseph's (Catholic) Hospital can be utilized to describe the objective of this study. The hospital was founded in 1955 in Huwei Township by Bishop Thomas Niu to provide comprehensive medical care to the citizens, of Huwei and nearby areas, particularly the impoverished. He noticed that the people in the town lacked medical care facilities and had to pay unaffordable medical bills, so he invited two foreign missionaries, Fr. George Massin and Fr. Anthony Pierrot, to establish St. Joseph's Hospital based on three principles: "total sacrifice, unconditional love, and constant joy". This hospital has served the economically disadvantaged residents of this small town of approximately sixty thousand residents for sixty-seven years. Many elderly people seek diagnosis and treatment at the neurology department of this hospital. Thus, the residents of this town are the subject of this study. In this work, we first established a tailored medical information system to detect and track dementia patients and their potential risk factors, and then we utilized data mining technologies to these acquired data to gain useful information."

6. Section numbering is incorrect since there is no section 2, but it starts with section 2.1 after section 1. Introduction.

Ans. Thanks. This has been corrected. Along with other reviewers' suggestions, new paragraphs are added, and sections are all re-numbered. We add one paragraph in Line [173~178].

"This paper is structured as follows. Section 2 discusses dementia-related literature, big data approaches, dementia diagnosis and the need for tailored medical software. Section 3 describes the software's techniques, implementations, and dementia patient information. Section 4 presents our hypothesis and data analysis. Section 5 discusses the study's contribution and limitations. Section 6 concludes with summaries and future works."

7. Please reference for the procedures of big data analysis in line 127.

Ans. The 20th reference has been added. It is an article entitled "Big data: A review" by S. Sagioglu and D. Sinanc.

8. In line 139, the authors suddenly direct this research to rural area which has not been mentioned in previous sections. In fact, the urban area could suffer more problems from dementia than the rural, so why the rural area is the main objective of this research?

Ans. There is no intention to ignore the patients in the urban area. We have added paragraphs to clarify this question. They are partly in the answer to **question 5** which we describe the history and mission of this hospital, and also in the contribution section which is in Line [759~762].

Line [759~762]

"The dementia patients we gathered are concentrated among the population of this small town and surrounding regions due to the hospital's geographical position. Although urban residential areas may hold more dementia patients, they are not included in the scope of this study."

9. It is expected that all acronyms must be spelled out when used for the first time (e.g., DBMS – A database management system, EEG – Electroencephalography?). A list of acronyms could be helpful in this case.

Ans. Thanks for this precious suggestion. These have all been revised. Any acronyms first appeared in the literature have been fully spelled out.

10. Section 2.2 should be certainly rewritten as it does not provide useful information about the designed system while its subsections are unnecessarily lengthy. For example: section 2.2 begins with Microsoft products (e.g., Windows, VBA, SQL, MS Access), their strengths and a GUI screenshot. I personally think that it is not necessary to emphasize them in details since this could raise several concerns about open-source solutions, and the world tends to migrate to them due to their obvious advantages. Section 2.2.1 details the developed software about MVS library, MS Excel, MS Word, ListBox, CheckBox, logical operators, etc.,. Again, I personally think that they can be described briefly and efficiently. Instead of focusing on specifying the MS-based features, some crucial information should be precisely provided like what basic information (how)

was the system collecting/tracking (e.g., medication history, home/hospital services, remote diagnosis)? Why were these information categories selected (randomly, expert-based experience or provided features of the hospital facility)? Did the authors design a totally new system or just add new modules to the existing system? Was there any other tests to determine the dementia besides EEGs (e.g., MRI, MMSE, Neurological exam)? From lines [166- 168], the authors could briefly explain how to identify a dementia patient before starting section 2.2. What is the most important information leading to that conclusion? What is “the in-house system” (how about “out-house” one)? We know that these above questions are partly answered by the following sections, which means that section 2 should be reorganized since interested readers might need to go back and forth to seek for desired information. It could be worth to have a section generally describing the dementia, current diagnosis methods through the DBMS, the limitations of the existing systems, and then your novel solutions in other (sub)sections.

Ans. There are many suggestions in this question. First, we revised the implementation section. To clarify the reviewer’s criticism of the use of Microsoft-related software and the use of the Listbox & Checkbox entities, I first added a paragraph to describe the process of determining dementia in hospitals and then address the need of developing customized medical software to detect dementia patients and store the related information in the database. They are from Line [211~254]. In section 3.1, I further explain the Listbox and Checkbox are utilized in this study. Also, the freeware of OpenOffice and LibreOffice are mentioned to avoid the open-source issue. They are in Line [256~280]. I also give an example of how the software utilizes the provided graphical user interface to create a SQL query string. They are in Line [301~308]. The lengthy section has been revised to have a concise paragraph. There is no “out-house” term, the “in-house” simply says it is not a commercial package, it is self-developed. We change all “in-house” to “self-developed” to avoid misunderstanding. The original Methods and Implementations section has been rewritten. This limitation of this study will be answered in reviewer’s question 12. The novel solution of this research is documentation in Line [754~778].

Line [211~254].

“Diagnosing dementia can be described as follows: When patients arrive at the hospital, they undergo general examination procedures to determine whether the patients are suffering from either general aging or dementia. The doctor’s inquiry and initial prescription are the first steps. The physician’s investigation comprises a preliminary examination, an inquiry into the patient’s current symptoms and prior drug usage, and a review of the patient’s past medical history. Next, the patient undergoes a neurological examination based on their symptoms, including a test to determine whether there is combined limb weakness, recognized Parkinson’s disease symptoms, and so on. Blood tests – such as standard blood tests, liver and kidney function assessment, electrolyte problems, vitamin B12 concentration, folic acid level, thyroid function, syphilis serum testing, and so on – are also included in the assessment procedures. Brain imaging examination techniques, such as CT (Computed tomography) or MRI (Magnetic resonance imaging), will be used to determine the patient’s conditions if more testing is required. These methods can evaluate brain atrophy and rule out other intracranial abnormalities. An Electroencephalography (EEG) test can also be utilized to assess the patient. Additionally, a cerebrospinal fluid biomarker analysis or another nuclear medical investigation may be used. On the other hand, dementia is frequently diagnosed using methods for assessing cognitive function. These instruments evaluate patients’ cognitive abilities and establish the severity of their dementia using a variety of scores. The two testing scales used most often are CDR (Clinical Dementia Rating Scale) and MMSE (Mini Mental State Examination). Usually, these general examination processes may be completed in a month, but it also depends on how frequently patients return for follow-up appointments. The type of dementia the patient has and its severity may be clearly confirmed after six months of assessment and inspection.

These examination procedures will generate a wide range of data, including digital data, picture data, a brain wave map, or a diagnosis text. These data will be dispersed throughout the hospital’s various databases. Hospital purchased examination equipment and software from commercial firms. Among the purchased software, the medical information system is commonly utilized by doctors to document patients’ consultations. Most physicians in different departments (such as gynecologists, pediatrics, otolaryngologists, ...etc.) use the general medical information system to diagnose patients’ problems and prescribe medication. They write the patients’ chief complaints and symptoms in a text format

and save these statements in the hospital's database. The diagnosis report will also be written by the physician at the end. Finding the patients' wide range of inspection information quickly from various databases by the general medical information system is quite challenging. Most commonly, doctors and specialists type diagnostic reports in various languages (such as English or Chinese). English acronyms will also be used in place of some terms. Even the same disease may have several distinct acronyms used by various doctors. Additionally, grammatical errors and typos can be commonly occurred (like the misspelling of Alzheimer's). All of these make it challenging to monitor and identify dementia patients using the query function from the general medical information system. Finding the required dementia patients and other medical histories from several databases is a time-consuming and laborious task for big data analysis of dementia. Creating a more personalized medical information system can resolve this issue."

Line [256~280]:

"This tailored medical information system, which serves as a front-end platform to collect patients' information, does not use mathematical formulas. Instead, the crucial components are an experienced physician with neurological expertise and a skilled software development team. Physicians should understand not only what examinations are necessary, but also what processes should be built into the medical information system so that physicians may utilize it straightforwardly and efficiently throughout the patients' consultation. A competent software development team will create a precise database architecture for future dementia patient tracking and inquiries. Previously, physicians typed words for patients' diagnosis reports; this program adds user interfaces to allow them to check proper items in addition to the verbose writing. This capability allows dementia information to be precisely recorded in the database to prevent those drawbacks previously mentioned. The system may then export these patients from our databases in the required search criteria when we have collected a sufficient number of patients, and the data analysis and mining methods can be applied to these data to obtain the hidden correlation information. Because most hospital medical equipment is linked to Windows PCs, this neurology-specific diagnostic system uses Windows OS. After selecting the framework, the window-based database was chosen. Software engineering was applied throughout the design and development cycle. During project implementation, attending physicians' or nurses' advice was used to construct the GUI. The relational database was chosen so it could be administered by the database management system (DBMS) and synchronized with the original hospital database and other existing systems, reducing development costs and time. To fit as many functions in the display window, we utilized the "Tab" entity. Each Tab's display and diagnostic features are different. Figure 1 depicts this customized medical system."

Line [301~308]:

"For example, if physicians want to know the details of female patients who were uneducated, under the age of 70, and had Degenerative Dementia or Vascular Dementia, they may use these specially designed logic operators to set the requirements. The software will create a SQL query string such as "SELECT * from dementia.table WHERE Gender = 'FEMALE' AND Age <= 70 AND (Dementia = Degenerative OR Dementia = Vascular)", then pass this string to query the table of the database (presume the name of the data table is called dementia.table). If the query command is successful, the query results will be displayed for the physician to investigate."

Line [754~778].

"Dementia is a global malady with growing ramifications for society, the economy, and families. Many individuals have benefited from this cooperative research. The contributions of this study can be summarized as follows. The hospital was built to serve the economically disadvantaged citizens of this community. A single visit to this hospital costs about \$5 to \$8, in addition to medications and possible examinations. Some may be able to waive the cost if combined with National Health Insurance. The dementia patients we gathered are concentrated among the population of this small town and surrounding regions due to the hospital's geographical position. Although urban residential areas may hold more dementia patients, they are not included in the scope of this study. Furthermore, studies on dementia risk factors have been conducted, with relatively few studies focusing on a specific group of patients. As a result, the trustworthiness of this study for the local residents of this area is quite high. We discussed our findings with academic institutions and relevant government agencies, and local governments started to build more long-term care facilities and develop daycare programs based on our findings. For instance, our research revealed a connection between education level and dementia severity. Because of poverty, loneliness, and a lack of social engagement, some dementia sufferers' conditions have progressively gotten worse. The development of the daycare facility currently allows people with dementia to visit during the daytime and engage in carefully developed interactive activities, such as drawing

classes, folk dance programs, or chess play. Furthermore, our research showed that dementia progresses more quickly in people residing in care facilities. The faculty of the care facility can notify the patient's family ahead of time if the patient's symptoms worsen. The family may anticipate and plan for all necessary safeguards ahead of time. This is extremely beneficial to the patients and their families. And through mutual discussion, software development engineers learned how to collaborate with hospitals to produce effective integration software."

11. Lines [180-182], "This is a unique design ... for neurology departments", where is the proof for this statement? The authors mean "mid-south Taiwan", "Taiwan", or "all over the world"?

Ans. In order to avoid disputes, we have deleted this sentence. Documents similar to our method cannot be found in the available publications. We have been invited to many hospitals to lecture on what we have done, and as far as we know, there is no similar implementation in other hospitals in Taiwan.

12. In section 3, it is expected that besides the strengths of the proposed analysis method, the authors should indicate its weaknesses as well as the future work.

Ans. We have added the limitation and drawback in Line [779~795], the future work is in the last paragraph of this literature (Line [860~866]).

Line [779~795]:

"This research inevitably has limits and downsides. As previously stated, the goal of this study is to identify potential dementia risk factors among persons residing near this hospital. For the people of this community, our results are quite accurate. However, such findings may not be applicable to the older populations in other metropolitan regions. In reality, cities have huge populations, and therefore there should be more persons suffering from dementia. If more samples can be included, the accuracy of the results will be more comprehensive and determined. However, due to geographical limitations as well as patient privacy and regulatory requirements, this study is unable to acquire patient data from other metropolitan hospitals for analysis. The other disadvantage is associated with the software system. Even though we created a specialized medical information system that can effectively store and collect information, different hospitals use different databases, and our system cannot be simply converted. In addition, our approach can only be utilized on Microsoft Windows; it will not function on other operating systems (IOS, Android, or Linux). Another limitation of this study is that only qualitative analysis of big data is employed; there is little quantitative analysis. The Chi-square test may establish whether there is a relationship between two variables, but what two categories of variables are connected requires more trials."

Line [860~866]:

"Using this tailored medical information system to continuously collect information from dementia patients will be a key responsibility in the future. A large number of samples can increase the data-mining result's accuracy. Other statistical approaches will be used to examine the data, and we believe that quantitative analysis might produce insightful information that will help patients' health. Seeking collaboration across hospitals to exchange research results and provide mutual assistance will also be a future research focus."

13. It is expected to see an alternative test for Chi-square, that makes your research more valuable. In fact, Chi-square test can merely determine the possible relations between two variables but it is unable to provide the sufficient information about the relationships between one to others or vice versa. It also cannot quantify these relations. Is there any efficient way to improve this problem? Do the authors think that Chi-square test is absolutely enough to make a firm conclusion towards dementia based on the achieved data?

Ans. We have surveyed many works of literature and consulted data mining experts. We realize that the alternative approach might be Fisher's Exact Test. The approach in the SPSS and Excel was applied to our dataset and yet created a system failure instance. I spent many efforts understanding its algorithm and implementing a python program to calculate the p-values of Fisher's Exact Test for our dataset. The algorithm requires the use of the calculation of factorials. An integer of 40 of the factorial yield the answer of 815915283247897734345611269596115894272000000000, not to mention that our dataset has 768 records.

Hence, we added a paragraph to explain this dilemma in Line [140~172].

Line [140~172]:

“Data mining is the technique of analyzing large data sets to uncover patterns and correlations that can be used to address problems via data analysis. It can help businesses forecast future trends and make informed strategic decisions. Despite the fact that there are still certain downsides and concerns surrounding this technique. Data analytics is a complex process that frequently necessitates the use of data mining tools by persons who have received training. Furthermore, there are several methods for analyzing data, some of which are more accurate than others. Security and privacy problems are also mentioned as important drawbacks. One disadvantage is that successful data mining necessitates big datasets [16, 18, 19]. However, data mining’s usefulness is showcased in an apocryphal anecdote. This intriguing story says that a study of consumers' buying behavior at a supermarket discovered that men frequently purchased beer and diapers together during weekend football games. Following this observation, the management intentionally positioned beer and diapers closer together, resulting in a significant rise in sales. Although the validity of this legend cannot be proven, discovering correlations between potential risk factors for dementia diseases is our essential research approach. The Pearson chi-square test was the major tool we used to analyze the collected data. This method has been used widely to determine the possible relations between two variables [38]. Although the Chi-square test determines likely relationships between two variables, it does not offer enough information regarding the relationships between one and others. It has also been criticized for not being able to quantify the relationships. The Fisher's Exact test is an alternate solution that is used not only to determine if there are nonrandom correlations between two categorical variables but also to examine the significance of the link between the two types of categorization. However, the Chi-squared test is an approximation for a large sample, whereas the Fisher's exact test is a precise approach, particularly for small samples. This statistical method uses the calculation of factorials. In addition to requiring sufficient processing power to compute the factorials of big numbers, the approach will induce numerical overflow. As previously stated, data mining may obtain correct information from a large number of samples; nevertheless, a large number of samples sur-passes the calculation range of Fisher's exact test [17]. Because of this quandary, this study continues to analyze data using the widely utilized Chi-square test. Like the majority of other research and reports [3, 9, 10, 24], ours does not compare the significance of the risk factors. The goal of this study is to identify dementia risk factors for this town's residents and take the appropriate action to enhance their health.”

14. The conclusions should just highlight the main contributions and significant outcomes found through the research. Most of the information in the current conclusions should be placed somewhere in very first sections.

Ans. Thank the reviewer’s suggestion. This has been done. Part of the paragraphs has been moved to the introduction section. The rest are also revised. The future work is added in the last paragraph.