Title

The title of the article being reviewed is “Yoga for improving sleep quality and quality of life for older adult.” The title of the article seemed to be long and the wording “quality and quality” seems to be repetitious for the readers who have not read the article. As a first time reader it is a bit ambiguous if the word quantity was misspelled for quality. However, after reading the article the title does make sense since the article discusses the sleep quality as well as other qualities such as the emotional, physical and psychological wellbeing that improves with yoga intervention in the elderly population. Though the research study measures the quantity of sleep, more significance is given to the quality of sleep and the quality of life for the elderly which makes the title appropriate for this article. The title implies the hypothesis of the research study. Though the title emphasizes the research to be a qualitative study, the research study uses a mixed methods research with a heavy emphasis on quantitative research methods. From the title the readers can clearly recognize that the independent variables are metrics related to yoga like pre and post intervention and the dependent variables are the quality of sleep and quality of life. Overall the title clearly presents the key variable and the population of the study.

Abstract

The abstract of the article is long with well-structured sub headings covering the main aspects of the research. The abstract contains the context, objective, design, settings, participants, intervention, outcome measures, results and conclusion. The contents under each subheading are concise and brief. The abstract provides a quick overview and central information of the research. One of the areas which contained unnecessary information was the result section. Instead of mentioning all the qualities such as “... sleep quality; sleep efficiency; sleep latency and duration; self-assessed sleep quality; fatigue; general well-being; depression; anxiety; stress; tension; anger; vitality; and function in physical, emotional, and social roles” the whole sentence could have been cut short by just mentioning improvement in quality of sleep and physical, emotional and social wellbeing, which covers all the factors mentioned above.

Introduction

The brief introduction of the authors and their educational qualification relevant to the study enhances the credentials of the research. The introduction clearly gives concept and the variable under study. In the beginning of the introduction, the author gives an estimate on the percentage of the elderly suffering from insomnia and the disastrous effects it causes in the physical, emotional and social wellbeing of the elderly. Though the illness may be treated with western medications, the medications cannot be used for long term and has many side effects which can affect the normal day to day functioning. As a result western medications may be less beneficial in treating patients suffering from insomnia. Hence a research is performed to study if yoga can reduce the symptoms of insomnia and increase the quality and functionality in elderly people. Though the hypothesis and the research question were not directly stated in the introduction, all the information mentioned above gives the readers a clear study purpose for the research. The research topic is very useful to the community and has a significant need as a large percentage of the population suffers from insomnia. The introduction also specifies that such studies have already been performed and the repetitious research to make the results more provable. The study design is *prospective* in nature as it *follows over time a group of individuals* to determine how the practice of yoga affects the quality of sleep and life. A literature review is not present in the introduction. From the listed references it is clear that the authors have studied many sources for performing this research. The articles are dated from the year 1989 to 2012. While most of the articles are up to date, a couple of articles are outdated. The listed articles are relevant to the research study performed.

Significance for nursing

Insomnia is one of the major issues suffered by patients admitted in any health care facility. Insomnia is one of the major factors that contribute to stress. As a result patients suffer from many physical, psychological and emotional distresses due to the lack of sleep. Since the western medications have limited desirable effects in the treatment of the disease, research studies in alternative methods such as yoga provides an evidence based practice for the nurses to use in the treatment of their patients. More research in this particular study can add support to the efficiency and effectiveness of yoga in the treatment of insomnia. The article does not particularly specify the use of intervention by the nurses in the elderly population; however nurses can make use of the observations from article to perform evidence based practice.

Method

The method section clearly demonstrates the guidelines used in the selection of the participants, the interventions used, the experimental protocol, the tools used for the data collection and the outcome measures.

Research Design

The study uses *mixed methods research with a heavy emphasis on quantitative research methods.* The study values both subjective and objective measures and uses multiple methods for data collection like in-depth interviews, surveys and intervention trials. The mixing of qualitative and quantitative methods occurs during the data collection, data analysis and data interpretation stages. This study is a convergent design where the investigator collects quantitative correlation data (objective sleep quality metrics using Embelta X100 sleep monitoring devices, surveys etc.) as well as qualitative individual interviews, self-reports and practice log data. During data analysis stage, the investigator combines the two by converting qualitative data to subjective quantitative scores (such as, mood state scores, Depression Anxiety stress scale and health status score) and carries out a quantitative analysis. The data analysis and interpretation consists of merging data and studying subjective and objective measures of quality of sleep and quality of life together.

This particular research study was performed using quasi experiment design. That is the “study was designed as a non-randomized, waiting-list controlled trial.” The main disadvantage of this research study is that the research study does not prove the benefits of the use of yoga in the treatment of insomnia in a wide range of population. The study would have given better results if it was performed using Randomized controlled trials. This research study implements a pre vs. post test design. Data was collected ten days before the intervention and ten days after the intervention. The study design is *prospective* in nature as it *follows over time a group of individuals* to determine how the practice of yoga affects the quality of sleep and life. The time dimension (for within subject variation) along with individuals in test and control groups (for between-subject variations) in this particular research design is helpful in using mixed, repeated measures analysis of variance (ANOVA) to analyze the quantified metrics related to quality of sleep and life.. The data were collected once at a fixed point before and after the intervention. Blinding is not used for the research study. This may introduce selection biases in the study.

The experimental group received the yoga intervention while the control groups were waitlisted. After the intervention, comparison between the groups is carried out to reveal the key relationships. The confounding variables are partly established in the research study. The confounding variables are age, physical, psychological, and social factors etc. A randomized double blinded study would have been a better method that provides a better balance of confounding variables and to obtain more homogeneity. As an enhancement, the investigators should consider such randomized double blinded study in the future. The external validity and generalizability is compromised in this research study as the study did not include participants from various population, settings and conditions. [[???]] The researches tried to reduce the bias in the study by controlling the subjects to not engage in similar activities or start using sleep medication while in the study; however participants who already were in the sleep medications were allowed to continue using the medications.

Population and Sample

The population were clearly identified and described in the article. The inclusion criteria were men and women over the age of 60 who complained of insomnia as described in the diagnostic and statistical manual of mental disorder. The study subjects were willing to give the informed consent and comply with all the study’s protocols and procedures. The exclusion criteria for this research study are participants who suffered from insomnia due to medical and psychological conditions that causes the illness and those who are substance abusers. The target population is elderly individuals living in the western society who can benefit from yoga to treat insomnia. The accessible populations were the elderly suffering from insomnia in Jerusalem, Israel. The differences in the characteristics of the population may lead to bias and jeopardize the reliability of the study. The usage of power analysis in the selection of the sample was not mentioned in the article. The sample size seemed to be small to support the validity of the results. In particular, only one objective measure (SWS – slow wave sleep stage) was observed to have statistically significant change in the post period using the current sample size. A larger sample will be helpful for the future research. The sampling method used for this particular research was non probability consecutive sampling. Out of 458 candidates who responded to the advertising campaign 74 suitable candidate were admitted for the study. Out of the seventy four selected the first 31 patients were assigned to the control group and the following 43 were assigned to the experimental group. In addition the sample size is small and monotonous and requires further research and enhancement to prove the intervention is successful in treating insomnia.

Data Collection and Measurement

The information obtained from the participants is highly reliable since different kind of tools were used to obtain detailed information from the participants. The data were collected through self-report. The triangulations were used appropriately since multiple methods were used for data collection which makes the research study more effective. Researchers collected the subjective measures by translating the qualitative questionares, self-reports, logs and surveys into quantitative scales such as Pittsburg Sleep Quality Index, the Karolinska Sleepiness Scale and the Epworth Sleepiness Scale. The study also measured the physical, psychological and social wellbeing through the Profile of Mood States short form, The Depression Anxiety Stress Scale long form and a health survey short form 36. Biophysical measures were used to obtain the objective data through portable Embletta X100 sleep monitoring device which measured the sleep onset latency (SOL), total sleep time (TST), total wake time and sleep onset (WASO), rapid eye movement sleep duration (REM), Non REM duration (NREM), light sleep duration (LS) and slow-wave sleep (SWS). Measurement of such diverse measures helps to triangulate and reduce the bias in the study. The data collectors were well trained and the researchers used the best data collection methods that enhanced the quality of the data. Since the data were collected 10 day before and after the intervention the data will give reliable information on the effectiveness of the study. However as too much of data was collected, this may be overwhelming for some of the participants and could have caused some erroneous answering of the questionnaire due to the fatigue experienced while filling the self-report questionnaire.

Procedures

The procedure of the interventions was clearly stated in the research study. Qualified professionals selected the participants for the study and the classes were conducted by six certified yoga teachers which make the intervention more reliable. The asanas, meditations, breathing and relaxation techniques taught during the intervention were designed to treat insomnia and enhance physical and emotional wellbeing. Hence the intervention solely concentrated on the variables being researched. The experimental groups were given the yoga intervention and the control groups were given the intervention after the 12 week control phase, and the variables in both the groups were carefully compared and analyzed. Such detailed procedures in general helps to enhance the validity of the study. All the participants in the group received the interventions: test subjects received interventions during the study and the control subjects received the intervention after the study period. There by, ethical standards are met while minimizing any biases to the study. The basic ethic of human rights such as informed consent, autonomy, nonmaleficence was taken care throughout the study. Overall the procedure for this particular study was well implemented. As indicated earlier, a future enhancement with randomized subject selection will help to further reduce the bias.

Results

The result of the study was clearly specified in regard to the demographics, dropouts, compliance, safety, sleep quality, quality of life and clinical significance of the result.

Data Analysis

The statistical method used for the research study was a mixed, repeated measure analysis of variance. The ANOVA method of testing is an appropriate method to find the difference in the variation between the three groups tested. The first comparison was between the yoga intervention group and the wait listed control group. The second comparison was between the high compliance yoga intervention participants and the low compliance yoga intervention participants. The repeated measure analysis of variance was required for this research study to prove the effectiveness of the yoga intervention between the groups. [[Type I and type II error were avoided by careful observation of the variables and the hypothesis of the study – ??? don’t know if this statement is correct. Seems more general, be specific ]]. The statistical Table 1, Table 2, Table 3, Table 4 and Table 5 give clear results of the study and the effectiveness of the intervention. Most of the independent variables were tested.

Findings

Different variables tested to understand the relationship between high compliance yoga group, low compliance yoga group and controls are mentioned in the finding. The high compliance yoga group had better results compared to the other two groups and the low compliance yoga group had better treatment results compared to the wait listed group. Most subjective factors and only one objective variable (SWS – short wave sleep cycle) were observed to have improved significantly (p-value < 0.05) for high compliance group. A higher sample count in the follow-up study may be needed to get a better read on objective variables that are currently not significant. The discussion section does mention about the various limitations of the study. One of the limitations is the limited compliance with the intervention provided. The research study stated that only 50% of the experimental groups were able to sustain the level of practice. This particular study did not have a single outcome measure which could have given a perfect answer to the research question. The researchers did conclude that for generalizability of the results, testing must be performed using randomized control study for successful results of the intervention. Since the participants in the study are those who responded to the advertisements there are high chances of biases to exist in the study. The study implied that 25 minutes of yoga practice per day for 12 weeks can improve the subjective symptoms of insomnia.  
Summary Assessment

Though there were various limitations and lack of generalizability in the study, the yoga intervention does seem to be useful in the treatment of the insomnia. The evidence can be definitely used in the nursing practice on a community based setting for the treatment of insomnia in the elderly people. Yoga has less or no side effects when compared to western medications in the treatment of insomnia since the report mentioned none of the participants were harmed during the intervention. Keeping the ethics of beneficence and nonmaleficence in mind, yoga can be used in some of the clinical setting for the treatment of insomnia. However in order for the intervention to be widely available and provide an evidence based practice further randomized research with large number of participants must be performed.

Halpern, J., PhD., Cohen, M., PhD., Kennedy, G., PhD., Reece, J., PhD., Cahan, C., M.D., & Baharav, A., M.D. (2014). Yoga for improving sleep quality and quality of life for older adults.*Alternative Therapies in Health and Medicine, 20*(3), 37-46. Retrieved from <http://search.proquest.com/docview/1552463015?accountid=13158>

Additional reference:

http://obssr.od.nih.gov/scientific\_areas/methodology/mixed\_methods\_research/section2.aspx