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ORIGINAL ARTICLE

INTERFERENCE OF CIRCADIAN RHYTHM OF PERFORMANCE OF NURSING PROFESSIONALS

A INTERFERÊNCIA DO RITMO CIRCADIANO NO DESEMPENHO DOS PROFISSIONAIS DE ENFERMAGEM

LA INTERFERENCIA DE LOS RITMOS CIRCADIANOS EN EL DESEMPEÑO DE LOS PROFESIONALES DE ENFERMERÍA

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ABSTRACT

Objective: identifying the chronotype of nursing professionals. ***Method:*** to carry out this study, we used two questionnaires. The initial questionnaire portrayed the profile of respondents and the second questionnaire found the chronotype of the research subjects, where there were interviewed nursing technicians and nurses from two private institutions of health care in the city of Curitiba: Hospital of the Brazilian Red Cross and the Curitiba Institute of Neurology. ***Results:*** it was found that: 4 (13%) were moderately morning, 19 (63%) as intermediates and 7 (23%) as moderately evening. None of the subjects showed definitively morning or evening chronotype definitely. ***Conclusion:*** knowledge about chronotypes can assist in understanding the best or worst performance of a nursing professional, as the time that is conducting its activities. ***Descriptors:*** Chronobiological Phenomena; Nursing; Circadian Rhythm; Shift Work.

RESUMO

Objetivo: identificar o cronotipo dos profissionais de Enfermagem. ***Método:*** para a execução deste estudo foram utilizados dois questionários. O questionário inicial retratou o perfil dos entrevistados e o segundo questionário verificou o cronotipo dos sujeitos da pesquisa, onde foram entrevistados técnicos de enfermagem e enfermeiros de duas instituições privadas de assistência à saúde da cidade de Curitiba: Hospital da Cruz Vermelha Brasileira e o Instituto de Neurologia de Curitiba. ***Resultados:*** constatou-se que: 4(13%) foram considerados moderadamente matutinos, 19(63%) como intermediários e 7(23%) como moderadamente vespertinos. Nenhum dos entrevistados apresentou cronotipo definitivamente matutino ou definitivamente vespertino. ***Conclusão:*** o conhecimento dos cronotipos pode auxiliar na compreensão acerca do maior ou menor desempenho de um profissional de enfermagem, conforme o horário em que esteja realizando suas atividades. ***Descritores:*** Fenômenos Cronobiológicos; Enfermagem; Ritmo Circadiano; Trabalho em Turnos.

RESUMEN

Objetivo: identificar el cronotipo de los profesionales de enfermería. ***Método:*** para la realización de este estudio, se utilizaron dos cuestionarios. El cuestionario inicial retrató el perfil de los encuestados y el segundo cuestionario encontró el cronotipo de los sujetos de la investigación, en el que se entrevistó a los técnicos de enfermería y las enfermeras de dos instituciones privadas de la atención a la salud en la ciudad de Curitiba: el Hospital de la Cruz Roja Brasileña y el Instituto de Neurología de Curitiba. ***Resultados:*** se encontró que: 4 (13%) eran moderadamente mañana, 19 (63%) como productos intermedios y 7 (23%) como moderadamente noche. Ninguno de los encuestados mostró definitivamente mañana o vespertinos definitivamente. ***Conclusión:*** el conocimiento de cronotipos puede ayudar en la comprensión del mejor o peor desempeño de un profesional de enfermería, como el tiempo que está llevando a cabo sus actividades. ***Descriptores:*** Fenómenos Cronobiológicos; Enfermería; Ritmo Circadiano; Turno de Trabajo.

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INTRODUCTION

"Since ancient times living organisms live with rhythmic processes in the environment" [1:24] and these rhythms are evident in most living beings.

Descriptions about rhythmicity between living beings are known for a long time. Since the beginning of formal science, with the development of knowledge of Astronomy, there were already known seasonal fluctuations in agriculture. In one of the fragments of poems of the poet Archilochus, who lived in Paros in 650 BC, we find the following statement: "identify how the rhythms govern the man"[1:32] In Hippocrates we have "Dies etnoxad summum etmimun consideratur"[2:98] that Aschoff freely translated as "Acrofases may occur in some phase of the circadian".[2:98]

It is clear, therefore, that the study of Chronobiology occurs from the beginning of science, through observation of scholars that even empirically, or with a still limited scientific, even then, could assume somehow that the rhythms were present in everyday life.

The endogenous biological rhythms allow organisms to anticipate to environmental changes critical for survival. Thus not only the body will be better prepared to facing environmental changes, such as possibly do without external signals to internally adjust to changing conditions.[3]

Most biological cycles occurs in a period of 25.2 hours and there is, as stated earlier, person to person differences, since the time for a zero is not necessarily the other. There are those who wake up and sleep early, they are individuals classified as morning, while others prefer to go to bed around 3 am, waking up near noon; they are the evening. It is therefore the circadian rhythm.

This aspect is extremely important, because the cycles of all functions are dragged by the sleep cycle. Thus, the external stimuli only serve to synchronize the internal rhythms to the environment because the body does not behave at night as in the day, no matter where the fact of being awake or asleep.[4]

Humans still suffer a number of circadian rhythms, that is, having a switching period of 24 hours, namely, body temperature, melatonin, sleep wakefulness, plasma cortisol, urinary sodium and potassium excretion, serum calcium, serum phosphate, and magnesium, cell mitosis, heart rate, systolic blood pressure, testosterone, uric acid, glutamine, glycogen content of the muscles, breathing rate, oxygen consumption, blood plasma volume, sweat rate, mood, memory, choice reaction times multiple, muscle strength, neuromuscular coordination, the main joint flexibility and muscular endurance. In addition to these, even some psychological functions, such as short-term memory, logical reasoning, mood, vigor and fluctuations in attention and concentration have circadian rhythmicity.[5]

Nursing is among the occupations where shift work appears as stressor, since a significant percentage of people working in this time of system reports a number of disorders, especially physical.[6]

The repercussions of shift work for workers' health, including ulcers, stress, emotional control and reduction in life expectancy argue that currently hospitals in developed countries such as United States and Canada have been following what is already known in chronobiology to determine the working range of its internal.

Studies about the health of workers are necessary and important today, because as scholars there has been a significant increase of this theme with concern about the health-disease process.[7]

We have, therefore, that during the professional and academic life we are faced with the allocation of employees at different times than they are used to develop their daily activities which, on several occasions, can end up damaging your pace of work, in addition to possibility of causing disease responsible for absenteeism and occupational, causing injury to the individual and the company. In view of the above, it has as research problem: What chronotype of nursing professionals? In order to answer this question, this study has the general objective:

- Identifying the chronotype of nursing professionals.

METHODOLOGY

To develop this study we used the quantitative research approach, the analysis was done in an exploratory way the data obtained.

Quantitative approach is characterized by the formulation of hypotheses, operational definitions of the variables, quantification in data collection methods and information, use of statistical methods. Widely used, the quantitative approach is, in principle, intended to ensure the accuracy of the results, avoid distortions of analysis and interpretation.[8]

To that end, this study was developed in three stages that follow the following

chronological order: 1st step: theoretical study; 2nd step: analysis of the current situation; 3rd step: exploratory analysis of the results obtained through questionnaires.

The first stage involved the theoretical study, in the form of collection of bibliographic data on the Chronobiology and chronotype involving nursing professionals.

The second step in the analysis of the current situation through a process of field research in question, by means of parameters such as the circadian rhythm influence the day-to-day nursing professionals. The field research is a step performed after the bibliographical study, so that the researcher has a good knowledge of the subject. Finally, in the last step, analyze the results obtained in the scenario after obtaining the questionnaire responses, making this parameter to achieve the proposed objectives.[9]

As data collection instrument we used the questionnaire prepared by GMDRB - Multidisciplinary Group Development Biological Rhythms: Institute of Biomedical Sciences, USP, containing questions related to the shift of the respondents, as well as questions regarding the circadian rhythm of the respondent. The questionnaire is a usable tool for gathering information. Not restricted to a certain amount of questions, but we recommend it is not too exhausting, discouraging the researched. It is emphasized that this is delivered in writing and will also be answered in writing.[10]

The research was conducted in two private health care institutions in the city of Curitiba and covered 30 people. The two hospitals aim to provide comprehensive health care, constituting centers of high complexity and reference in neurology, cardiology and urology.

The research sample was 30 professionals nursing, among 18 nursing technicians and 12 nurses, 15 subjects in each institution where the work day was considered 36 hours per week. Thus, it was taken into consideration that the morning shift was started at 07:00 and ended at 13:00, the afternoon shift started at 13:00 and ended up at 19:00 and the night shift started at 19:00 and ended at 07:00. We also point out that the research subjects were professionals belonging to three shifts.

To be viable, it is emphasized that the ethical aspects followed Resolution 196/96 of the National Health Council, which establishes ethical guidelines and requirements of research involving humans. Therefore all subjects of this study were informed about this by signing the Instrument of Consent. As this study approved by the Research Ethics Committee of the Evangelical Beneficent Society of Curitiba under number 5002/10.[11]

Data collection was performed in a single step with application of two questionnaires to nursing professionals. The first portrayed the profile of respondents and the second evaluated the chronotype of each of the respondents.

The initial questionnaire was composed of nine questions to info about the subjects participating in the study, including data such as gender, age, marital status and work shift. The second, in turn, consisted of 27 questions prepared by GMDRB - Multidisciplinary Group Development Biological Rhythms: Institute of Biomedical Sciences, USP. To analyze the data from this second questionnaire only nine questions were selected for determining the chronotype of respondents, so we use the arithmetic mean of the respondents as the basis for data analysis.

This is a chronotype questionnaire, a Portuguese version of Morningness-eveningness Questionnaire (MEQ) Horne and Ostberg, translated and adapted by GMDRB USP Institute of Biomedical Sciences. It is the most widely used and validated questionnaire worldwide for chronotypes identification.

RESULTS

♦ Analysis of the profile of nursing professionals

The first questionnaire aimed to analyze the profile of nursing professionals. To that end we have, therefore, that prevailed a total of 20% of male respondents and 80% female. In addition, 29% of people who participated in the interview were between 29 and 32 years old.

According to the status we have, among the respondents, 57% are married, 40% single and only 3% are divorced. Of these, 40% say they do not have children and 60% have children. Of the respondents who have children, 50% have their children aged 0 to 7 years old, and 50% have children over 8 years old.

Regarding the area of operation, the total sample universe, 60% are nursing technicians and the other 40% are nurses.

In the analysis of the results in relation to the time that each trader carries the profession, 50% of respondents already operate in health for at least 7 years, followed by 30% who are exercising the profession between 3 and 7 years, and only 3% who are working in the nursing field for less than one year.

To complete the questionnaire referred to the profile of the research subject was asked whether respondents exert some other type of professional activity. Of these, 80% say they do not perform any other professional activity against the remaining 20% engaged, in addition to private home care, also the coordination of Nursing and one active as a hairdresser.

♦ Analysis of chronotype of nursing professionals

30 respondents answered the questionnaire including 18 nursing technicians and 12 nurses, 6 males and 24 females.

Through points of the answers provided for each question, as shown below was found that: 4 (13%) of moderately morning interviewed, 19 (63%) and intermediate 7 (23%) moderately evening. None of the subjects showed definitively morning or evening chronotype definitely.

DISCUSSION

The work has a key role in the life of the individual, because it allows the construction of their identity and subjectivity, and integration in social life is fundamental to health.[12]

Nursing professionals are constantly subjected to shiftwork and changes in work schedule which can affect the correct functioning of the body and affect its performance. The shift work may be harmful to health, but also nursing care cannot be interrupted and therefore work shifts represent a need that cannot be replaced.

With the development of Chronobiological science demonstrated that individuals may belong to different chronotypes in this sense the differences between the allocations within 24 hours of the sleep-wake cycle. There are, therefore, individuals who agree morning from 5 hours to 7 am, the evening waking up around 12 hours and 14 hours and intermediaries may agree sooner or later.[13]

A peculiar feature of nursing professionals work is to reconcile all the sleep deficiency in order to remain alert, plus there is the commitment of the functions that are critical to maintaining the physiological and cognitive processes, levels of attention and vigilance must be adequate for the tasks at night. The nursing team experiences a conflict situation and maintains the regularity of the sleep-wake cycle and respond demand can cause changes in affective state.[14]

The night shift worker experiences a reversal of time, remaining awake at night and sleeping by day. The author also emphasizes that this work is in relation to the individual working day, in an inferior condition, that is, more tired, more concerned, and more vulnerable to attacks.[12]

The nursing practice demands attention, concentration and coordinated handicraft and little sleep or poor sleep can lead to a reduction in physical performance, attention and concentration, in addition to disrupt motor coordination and mental pace.[12]

Thus, improving the quality of life is a concern that the nursing staff should have, so that in this way the team will improve nursing care, so the chronobiology knowledge must be applied in the programming of assistance and also in the preparation of work schedules. For this to be possible it is necessary that all nursing staff know the basics of Chronobiology and learn to evaluate the chronotypes team members. Knowing the team chronotypes, it becomes easier to understand the performance of a worker as your working hours.

Finally, knowledge of Chronobiology is of paramount importance for all individuals may have a life of higher quality and can better adapt to the times compatible to your chronotype and getting better performance for carrying out various activities.[15]

FINAL REMARKS

Based on the questionnaire analysis of chronotypes of nursing professionals, we can conclude that a total of 30 subjects, a contingent of 60% constituted technical nursing professionals, with prevalence of night shift work, within an age range of 29 to 32, married in marital status and children. However, and instigating, we realize that the largest contingent of chronotypes was classified as intermediate, opposing the allocation made by the subject, as mentioned, at night.

Given the above, several questions lead us to reflection as: What is the quality of personal life and professional work working out of context of chronotype? How this employee feels motivated to work? How to combine individual chronotype the work process in active nursing within a service perspective 24h or full?

We have, therefore, that the work in hand, that is, alternating shifts always cause reduction of hours of sleep and, hence, changes in circadian rhythms; these changes are due to other factors that always are associated, such as sleep deprivation, the stress and bad eating habits.

Knowledge of chronotypes can help us understand the best or worst performance of a nursing professional as the time that is

conducting its activities. One of the ways to best take advantage of the individual performance of each member of the team is to carry out an appropriate range of work, with the division of the team from the knowledge, the nurse responsible for allocating the developer, chronotype this, the order to adjust the daily tasks according to the characteristics of your team.

Therefore, knowing that the chronobiology, while science is an essential factor in assessing the professional chronotypes, including and especially in this case nursing. We believe that this should be disclosed more and more, especially among future professionals of the educational field, as they will be ahead of decisions, planning and have the opportunity to promote changes in the organization of the work environment aiming thus better performance of all.

In a future not too distant glimpse chronobiology as a basis for reasons of discussions on the organization of companies contributing to better job performance, as well as an improvement in the quality of life of the individual within the work environment.

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