Influencia de la pauta de dosificación sobre la adherencia terapéutica en jóvenes

Influence of dosage schedule on the therapeutic adherence in young

Influência do esquema de dosagem sobre a adesão em jovens

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Resumen

La *adherencia terapéutica* implica el cumplimiento, de parte del paciente, de las indicaciones del terapeuta para mejorar su estado de salud; la adherencia a largo plazo es importante para prevenir complicaciones de salud y evaluar la efectividad del régimen terapéutico, dado que las enfermedades crónicas se han convertido en un problema creciente de salud pública porque su falta de control provoca problemas psicosociales y económicos como depresión, costos elevados para el sistema de salud, un aumento en los gastos para el paciente y mayores ausencias en el trabajo. Por ello, el objetivo de este trabajo fue estudiar los factores que influyen en la adherencia terapéutica en jóvenes estudiantes universitarios por medio de experimentos sencillos de administración de placebo; el número de individuos participantes fue 114 voluntarios (53 hombres y 61 mujeres) con rango de edad de 19-25 años (edad promedio 21 años); se emplearon dos métodos para medir la adherencia terapéutica: uno basado en la medición del número de comprimidos consumidos y el otro en un cuestionario de autoevaluación. Los resultados del estudio demuestran que el género y el número de dosis son factores importantes que

influyen sobre la adherencia al tratamiento; las mujeres se apegaron mejor al tratamiento aunque ambos sexos disminuyeron el cumplimiento cuando se aumentó la frecuencia de administración de dosis (porcentaje cumplimiento del tratamiento: 83 % en hombres y 88 % en mujeres con tres comprimidos, y 54 % en hombres y 65 % en mujeres con 7 comprimidos al día). Además, se demostró que existen discrepancias entre los resultados de ambos métodos empleados, los hombres tendieron a mentir más respecto al cumplimiento del tratamiento (porcentaje cumplimiento: hombres, método subjetivo 60 % y método objetivo 54%; mujeres, método subjetivo 68 % y método objetivo 65 %).

Palabras clave: adherencia farmacoterapéutica, salud pública, pacientes jóvenes.

Abstract

Therapeutic adherence implies the compliance, on the part of the patient, advised by the therapist to improve their state of health; long-term adherence is important to prevent health complications and assess the effectiveness of the therapeutic regimen, given that chronic diseases have become a growing problem of public health because their lack of control leads to psychosocial and economic problems such as depression, high costs for health system, an increase in costs for the patient and major absences at work. By this, the objective of this work was study the factors that influence in the adhesion therapeutic in young students University by means of experiments simple of administration of placebo; the number of individuals involved was 114 volunteers (53 males and 61 females) with age range of 19-25 years (age average age 21); two methods for measuring the adherence were used: one based on the measurement of the number of consumed pills and the other in a self-assessment questionnaire. The results of the study show that the gender and number of dose are important factors influencing adherence to treatment; women stuck better treatment though both sexes decreased compliance when the frequency of dose was increased (treatment compliance percentage: 83% in men and 88% in women with three tablets, and 54% for males and 65% in women with 7 capsules per day). In addition, it was demonstrated that there are discrepancies between the results of both methods, men tended to lie more on the treatment compliance (percentage compliance: men, subjective method

60% and 54% objective method; women, subjective method 68% and 65% objective method).

Key Words: pharmaco-therapeutic adhesion, public health, young patients.

Resumo

A adesão implica o cumprimento do paciente, as indicações terapeuta para melhorar a sua saúde; A longo prazo, a adesão é importante para prevenir complicações de saúde e avaliar a eficácia do regime terapêutico, uma vez que as doenças crônicas tornaram-se um problema crescente de saúde pública devido a sua falta de controle faz com que problemas psicossociais e econômicas, como depressão, custos elevados para o sistema de saúde, o aumento dos custos para o paciente e aumentou as ausências do trabalho. Portanto, o objetivo deste trabalho foi estudar os fatores que influenciam a adesão em jovens universitários através de administração simples experimentos placebo; o número de indivíduos envolvidos foi de 114 voluntários (53 homens e 61 mulheres), com faixa etária 19-25 anos (idade média de 21 anos); foram utilizados dois métodos para medir a adesão: uma baseada na medição do número de comprimidos consumidos e outro em um questionário de auto-avaliação. Os resultados do estudo mostram que o género e o número de doses são factores importantes que influenciam a aderência ao tratamento; mulheres sejam respeitados melhor ao tratamento, embora ambos os sexos redução da complacência quando a frequência de administração (taxa de cumprimento do tratamento foi aumentado: 83% em homens e 88% em mulheres com três comprimidos, e 54% em homens e 65% em mulheres com 7 comprimidos por dia). Além disso, foi mostrado que existem discrepâncias entre os resultados dos dois métodos empregados, os homens tendem a mentir mais com relação à adesão ao tratamento (percentagem de conformidade: homens, subjetiva 60% e método método de destino 54% de mulheres, método subjetivo 68% e método segmentar 65%).

Palavras-chave: aderência farmacoterapia, de saúde pública, pacientes jovens.

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Introduction

It means adherence to the process whereby the patient is properly advised by the therapist and meets received prescriptions, and it involves the behaviour of the patient degree to correspond to the recommendations agreed with the health care professional to take medication (Salinas Cruz and Nava Galán, 2012. Alba Dios et al., 2015). Therapeutic adherence is critical for results favorable in the treatment of diseases because if not it adheres to the therapeutic regimen of anything it would have advanced diagnostic methods and highly effective drugs (Salinas Cruz and Nava Galán, 2012). The term of Adherence to Treatment implies the degree of performance of a patient according to the dose, the guideline dosage and the prescribed period; clinical outcomes of drug therapy depend on much in the way of how to take your medication patients as time carrying it (Dilla et al., 2009). The lack of adherence to therapeutic treatment has a high prevalence and affect clinical practice especially in treatments in the long run, as the drug therapy of patients with chronic diseases, e.g. diabetes, hypertension or cancer (Chacón et al., 2015. García Cedillo and Morales Antúnez, 2015).

The World Health Organization considers as a priority public health issue the lack of adherence to therapeutic treatment since it involves clinical and economic consequences: failures in Pharmacotherapy, an increase of health costs increase in hospitalization rates and a higher rate of mortality (Conthe and Tejerina, 2007. Arrivillaga Quintero, 2010. Perrín Santolaya et al., 2012). The origin of the therapeutic non-compliance is multifactorial and is due to reasons related to the patient, who is the central focus of the problem; in addition compliance depends on the set of elements involved in the process: disease, health workers, and the health system. Due to the patient factors include age, the cultural and social environment, the level of education and even the personality (Martín Alfonso and Grau Abalo, 2004; Ortiz Parada, 2008; Serrano et al., 2014).

Various situations lead to a lack of adherence to drug treatment, sometimes it is an unintentional failure due to forgetfulness or confusion, but also the patient can stop taking the medication voluntarily; For example, when he perceives an improvement halfway through treatment, when there is fear of adverse reactions or believes that the medication is unnecessary or excessive (Soria Trujano et al., 2012; Salcedo Barajas et al., 2014). Poor

therapeutic adherence in the treatment of chronic diseases is a health problem with an alarming growth, especially in young people who by their daily activities tend to forget the fulfillment of the medication. It is estimated that on average 50% of patients do not adhere to treatment in industrialized countries; It is of interest to evaluate the adherence to the pharmacological treatment because a detachment to it causes ineffectiveness of the therapeutics, increase in the costs of health care and problems of personal, family and social nature (Ortiz and Ortiz, 2008) . Problems related to therapeutic adherence are presented either by excess or defect in the follow-up of the recommendation and occur at any time (before, beginning, during or end) of the treatment; Even more, in complex therapies patients can adhere to certain aspects of the prescription but not all, or some in certain circumstances but in others not (Salvador Ortiz, 2004; Ortiz y Ortiz, 2005).

The problem of lack of adherence to therapy is complex, regardless of whether it is intentional or not, and for its approach it is necessary to identify which factors affect a given group and to be able to design individual strategies to correct it and avoid its negative consequences (Martín Alfonso and Grau Abalo, 2004; Serrano et al., 2014). In chronic diseases that begin from adolescence or youth, resistance to therapeutic compliance also involves psychosocial factors, for example in cases of type 1 diabetes there are manifestations of rebellion in addition to other emotional states linked to the process of acceptance of the disease (Ortiz And Ortiz, 2005). One of the factors considered to be the cause of therapeutic noncompliance is the complexity of the dosing regimens, a greater number of drugs and multiple doses predispose to the lack of attachment; Considering this the objective of the present work was to know how it affects the complexity of the medication guidelines in the adherence to the treatment in young university students. In order to simplify the factors influencing the lack of adherence in this study, the phenomenon was studied in healthy patients, obviating factors dependent on the disease and the health system.

Methodology

A descriptive, observational study was designed to determine the factors that influence therapeutic adherence in young university students through simple experiments on placebo administration (sugar tablets of different colors: white, yellow, blue and red); The number of participants was 114 volunteers: 53 men and 61 women with age range of 19-25 years (average age 21 years). Four pharmacotherapeutic regimens were simulated, each lasting 14 days: a) The first was the administration of one tablet every 8 hours (three daily doses); B) the second with the administration of a tablet A every 8h and a tablet B every 24h (four tablets / day); C) the third with the administration of a tablet A every 8h and a tablet B every 12h (5 tablets / day); D) the fourth consisted of administration of one A tablet every 6 hours and one tablet B every 8h (7 tablets / day). At the beginning of the experiment participants were instructed on the use of the pillbox and the importance of therapeutic adherence, finally the required tablets were supplied during each period and the dosage guidelines of each one were indicated.

Conditions of application

Persons who met one or more exclusion criteria (who were in a treatment regimen in the study period, who were over the age range, or who stated that they regularly consume alcohol or smoking were not admitted to the study) or who refused to participate , Upon request of their consent, and the following volunteer participant was elected. Each participant was given a short interview to collect the sociodemographic data of the study (age, sex, marital status, degree, degree and family situation: live alone or with someone close to him); He was also asked if he had any disease.

Subjective assessment of therapeutic compliance

At the start of therapy, placebos were dispensed as unit doses in each of the pill boxes distributed per day; Two methods were used to measure adherence: the first was subjective, by means of the resolution of a questionnaire that consisted of two parts: 1) open questions to know the situations that were presented during the treatment that hindered or impeded

compliance and 2) a table Calendar (table 1) for the participant to indicate compliance, as a self-assessment.

Table 1. Example of the calendar table provided to each participant for self-monitoring of their therapeutic adherence.

Código de Paciente									
Medicamento Amarillo			Tomar un comprimido cada 8 horas						
	Hora	**Día 1**	**Día 2**	**Día 3**	**Día 4**	**Día 5**	**Día 6**	**Día 7**	Observaciones
Semana 1	**6:00**								
	14:00								
	22:00								
Semana 2	**6:00**								
	14:00								
	22:00								

Ponga en cada recuadro una √ si tomó la medicación o una X si faltó a ella, escriba en el cuadro de observaciones cualquier dificultad que tuviera para cumplir o las causas del incumplimiento del tratamiento. Fuente: elaboración personal.

Objective measurement of therapeutic adherence

A posteriori, as a method of verification was used the count of tablets to measure the degree of therapeutic adherence; During the course of the experiment and without prior notice, days 3, 7, 9, 12 and 14 counted the number of pharmaceutical forms in the pillbox. The percentage of compliance was calculated by dividing the total number of tablets presumably consumed by the total number of tablets that should have been consumed and multiplying by 100.

Analysis of data

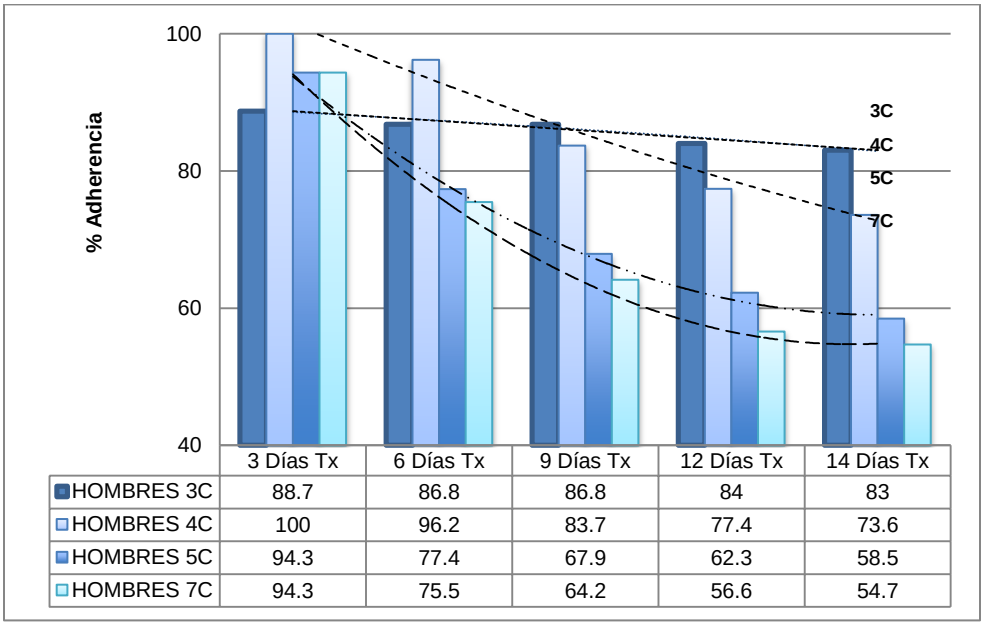
The obtained data were captured, stored and processed with the program Microsoft Office Excel 2016 ®; First the data of the surveys were tabulated and later a descriptive analysis was made by an exploratory graphical analysis and by the calculations of the percentages and intra-group averages. A descriptive analysis of the variables with a 95% confidence interval was performed, followed by an analysis to verify the relation of the main independent variable (therapeutic adherence) between the values obtained in the questionnaires and the counts according to the socio-demographic variables Sex, marital

status and family situation. Statistical tests were used for Student t and Chi squared ($p < 0.05$) and SPSS 22.0 was used for the analysis.

Results

The results of compliance with the dosing regimens during the experiment are shown in Figures 1 and 2, where it can be observed that there is a tendency (dotted lines) to detach to the pharmacological treatment through the treatment time and according to the complexity of the Dose regimen, ie with the increase in the frequency of the dose and the number of drugs indicated; In this study the time duration factor of the pharmacological treatment was not included (all were 14 days), so it is recommended to study it to include more factors to the analysis; Although each experiment was performed in the same group of people, 7 days were given between each dosing regimen as a rest period. In this paper, the results obtained from the patients who concluded the four treatments were reported, initially the group was older, but for several reasons 25 volunteers decided to deserter the study.

Figure 1. Percentage of male students who met the dosing schedule through the experiment (Tx= tratamiento, C= comprimido, las líneas representan la tendencia polinominal en cada Tx.)

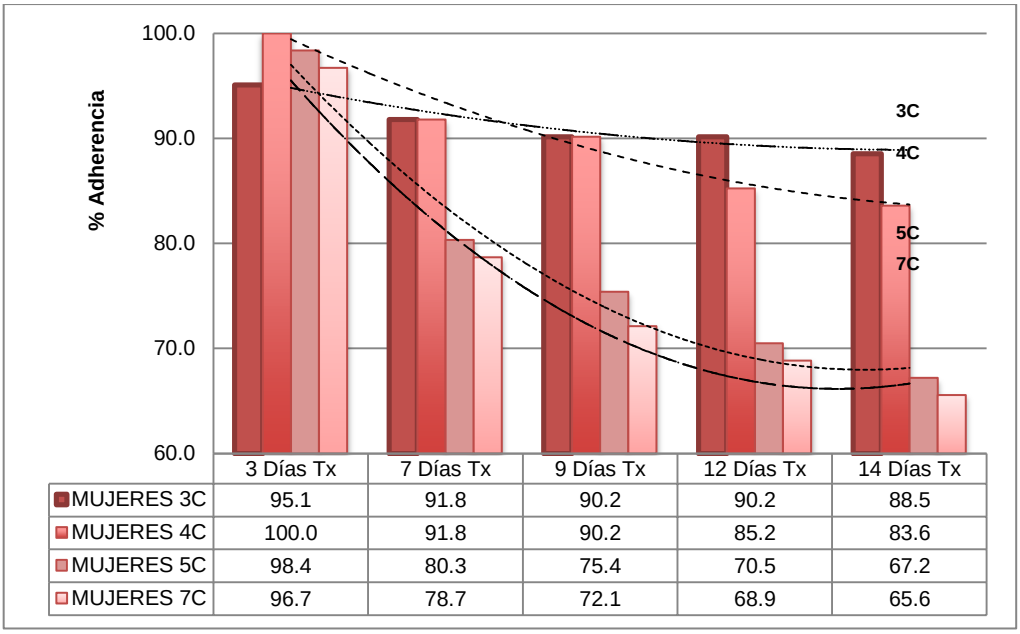


	3 Días Tx	6 Días Tx	9 Días Tx	12 Días Tx	14 Días Tx
HOMBRES 3C	88.7	86.8	86.8	84	83
HOMBRES 4C	100	96.2	83.7	77.4	73.6
HOMBRES 5C	94.3	77.4	67.9	62.3	58.5
HOMBRES 7C	94.3	75.5	64.2	56.6	54.7

Source: cuestionario.

Failure to comply with the dosing regimen increases in both groups (men and women) according to the daily number of tablets they had to consume; When they had to take 3 tablets, the percentage of non-compliance (lower slope of the trend line) remained almost constant, the lack of adhesion increased more steeply with the multidose regimens of 5 and 7 tablets.

Figure 2. Percentage of female students who met the dosing schedule throughout the experiment time (Tx= tratamiento, C= comprimido, las líneas representan la tendencia polinominal en cada Tx.).

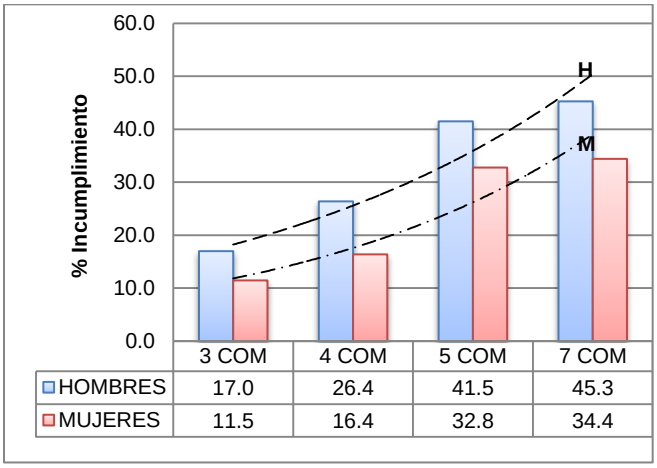


	3 Días Tx	7 Días Tx	9 Días Tx	12 Días Tx	14 Días Tx
MUJERES 3C	95.1	91.8	90.2	90.2	88.5
MUJERES 4C	100.0	91.8	90.2	85.2	83.6
MUJERES 5C	98.4	80.3	75.4	70.5	67.2
MUJERES 7C	96.7	78.7	72.1	68.9	65.6

Source: cuestionario.

However, when comparing the results shown in Figures 1 and 2, it can be observed that the percentage of therapeutic adherence is lower in men than in women; The percentages of non-compliance at the end of each treatment are plotted in figure 3 and it can be seen that a higher percentage of men did not comply with the treatments (from 17.0 to 45.3%) compared to the women (from 11.5 to 34.4%); However, the tendency to increase the percentage of noncompliance (by increasing the number of tablets to administer) is similar in both groups.

Figure 3. Percentage of noncompliance of each group of volunteers at the end of each treatment (día 14 del experimento, COM= comprimidos).

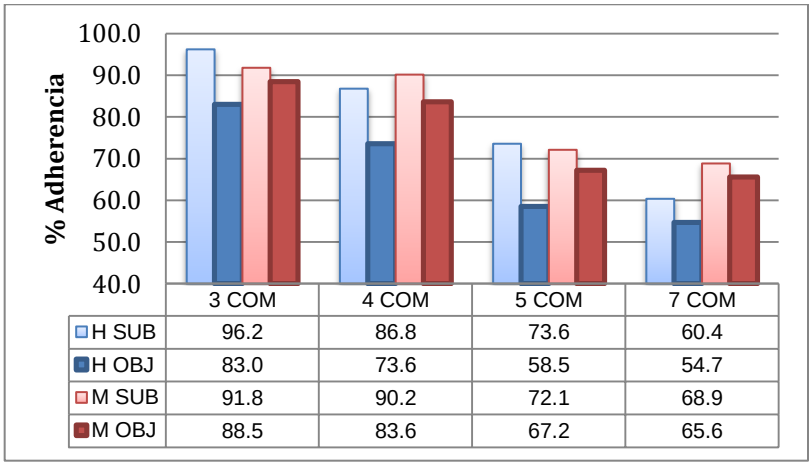


	3 COM	4 COM	5 COM	7 COM
HOMBRES	17.0	26.4	41.5	45.3
MUJERES	11.5	16.4	32.8	34.4

Fuente: cuestionario.

Although both genders tended to minimize the lack of treatment adherence (as shown in figure 4), men were less reliable because there was a higher percentage than self-evaluation (subjective test), where they reported that they complied, but In the review of the pill boxes it was shown that they had not consumed the corresponding tablet.

Figure 4. Comparison of the percentage of subjective and objective adherence of each group at the end of the experiment (día 14 del estudio, H= Hombre, M= Mujer, Sub= subjetivo, OBJ= Objetivo, COM= Comprimidos).

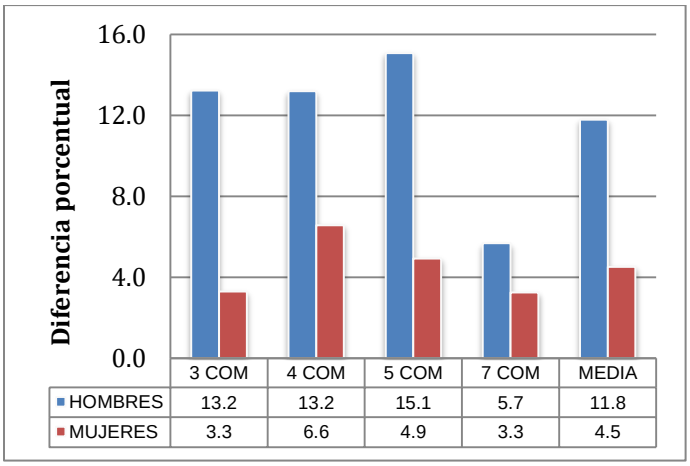


	3 COM	4 COM	5 COM	7 COM
H SUB	96.2	86.8	73.6	60.4
H OBJ	83.0	73.6	58.5	54.7
M SUB	91.8	90.2	72.1	68.9
M OBJ	88.5	83.6	67.2	65.6

Source: cuestionario.

Figure 5 shows the percentage differences in adherence to the dosing regimens, that is, between the difference in compliance that students reported against actual compliance; This difference is greater in men (average 11.8%) than in women (average 4.5%).

Figure 5. Percentage difference of reported (subjective) compliance with target compliance of each group at the end of the experiment (COM = tablet).



Source: cuestionario.

The main instrument used by the participants to remember tablet intake was cell phone alarm, 41 (77%) of the men and 54 (88%) of the women used this method. When investigating why the other students had not used it, it had to 4 men and 5 women had no cell or the model available did not allow the configuration of various alarms or to label the activity that alert.

Although they were instructed on the use of the pillbox and that each participant had one for the organization of the administration, only 24 men (45.3) and 58 women (95.1%) always carried the pillbox, as was found during the reviews (20 total revisions, 5 in each treatment and 4 total treatments); Of these, 13 men and 18 women (54.2 and 31.0% of the total number of participants who had pill boxes) were not used correctly. The use of the pill box outside the home is more difficult for men (39 participants, 73.6%) than for women (12 participants, 19.7%), mainly because men generally do not usually carry things with them or because of lack of space when They go out to walk, because during the classes they carried it in their backpacks but generally at the weekends the men do not carry bags and

for that reason they reported that they were difficult to transport them (in the bag of the pants or in the hand and they even forgot it in the glovebox Of your car).

Adherence to a therapeutic regimen requires commitment and attention to established schedules and adaptation of treatment activities to those performed on a daily basis; The majority of respondents (46 men, 86.8%, and 59 women, 96.7%) reported that it was very stressful to follow the dosing regimen, especially after the month of implementation (third and fourth treatment). The various activities carried out by young people complicate adherence to treatment, especially on weekends in which they adopt an attitude of rest and relaxation; 48 men (90.6%) and 49 women (80.3%) answered that it is difficult to integrate therapeutic activities in their usual itinerary.

At the start of the study, 49 men (92.5%) and 35 women (57.4%) had difficulty organizing the tablets and although it was not quantified, it was observed that only a median number of students complied with the treatment because several participants They chewed the tablets (they did not ingested them with water, as instructed at the beginning of the study), because when they remembered that it was the hour of ingestion they had not planned to carry water to drink it and others consumed it with soda or along with the meals.

Finally, a positive factor that encouraged compliance with the treatment was the active participation and accompaniment of the health personnel to the participants. Both men and women reported that the motivation (48 men and 61 women) and the interest shown by health personnel (52 men and 61 women) were positive attitudes that encouraged them to comply with the dosage; They also mentioned (52 men and 61 women) that non-repressive surveillance (lack of reproach, punishment or stigmatization) by the health personnel represented their commitment to the patient and motivated reciprocal response to the effort shown by the staff sanitary.

Discussion

The problem of therapeutic adherence is serious and several studies estimate that more than half of patients with chronic treatments do not follow the indications adequately; The problem may be due to different causes depending on the patient, the disease, the medication and the health personnel (Merayo Alonso et al., 2008, Alba Dios et al., 2015, Martín Alfonso et al., 2015). There are psychosocial factors that negatively influence the adherence to the therapeutic regimen, among them the perception of health status and the disease that causes anxiety and depression (Soria Trujano Trujano et al., 2011; Urzúa et al., 2011; Serrano et al., 2014).

Some methods for the evaluation of pharmacotherapeutic compliance are based on questionnaires that the patient has to solve, so that whenever it can be corroborated with some reference method, for example, in the case of diabetes is contrasted with glycemic control and In the case of hypertensive patients with blood pressure values (Díaz Romero et al., 2004, Jiménez Herrera, 2014 and Maldonado Reyes et al., 2016). This is important because the therapeutic failure can be due to the lack of commitment and compliance on the part of the patient and if it is not considered that the failure to achieve the goals proposed in the pharmaceutical plan may be due to non-compliance with the dosing regimen, then resources are wasted To demand other drugs, more laboratory studies and consultations or hospitalization time for poor control of the disease (Merayo Alonso et al., 2008; Dilla et al., 2009; Vidal Corominas y Chamblás García, 2014; Chacón et al., 2015).

According to Orueta Sánchez (2005), methods of detection of adhesion are divided into direct (by determination of the drug or its metabolites in plasma or urine) and indirect (by questionnaires, questionnaires, process control and tablet count); Each one presents its advantages and disadvantages, the main problem of the self-assessment questionnaires is that the patient tends to lie to avoid being scolded, so the professionals should try to create a suitable environment by not blaming the patient and try to deepen the relationship Professional-patient and that interventions should be integrated into daily clinical practice. This point is critical for decision making because the therapeutic failure may be due to lack of adherence, in which case compliance must be monitored, whereas if the patient is compliant

and the desired results are not obtained, a Revision to pharmacotherapy to optimize it. These signs coincide with those of Jiménez Herrera (2014), who points out that the various methods of measuring adhesion allow grouping the patient's behavior because the adhesion process is dynamic and complex due to several factors involved. Greater consensus and research on the different aspects involved in therapeutic adherence. Bolaños Cardozo (2014) points out the importance of a more objective and concrete evaluation to promote a therapeutic intervention based on integral models.

In this study it was observed that increasing the number of tablets decreased adherence to the medication; In this sense coincides with the research of Sontakke et al. (2015), who with an average regimen of three to six medications taken daily reported that 70% of patients did not adhere to treatment. A similar figure points out Jiménez Herrera (2014), in his study approximately 50% of patients adhere to pharmacological treatment; Among the factors related to compliance, according to Jiménez Herrera, the characteristics associated with the person (such as sex, knowledge and attitudes) and characteristics of the therapeutic regime (number of medications, dose, frequency, duration and The complex therapeutic schemes).

The role of the health professional should be to motivate and accompany the patient in their treatment to adhere to it and comply with the indications that health professionals give him, rather than an inquisitive role that would break the sincere communication with the patient the pharmacist And all other health professionals must show empathy with the patient to recognize that he does not comply with the treatment but understands the complications involved and the negative aspects of his behavior so that he can compromise the treatment success (Quiroga Garza, 2012, Jiménez Herrera, 2014, Serrano et al., 2014, García Cedillo and Morales Antúnez, 2015).

The most demanding lifestyle complicates the fulfillment of the therapeutic treatment, the multiple activities that the students favor forgetfulness and detachment from their new obligations; In particular, stated that at weekends it was more difficult to follow the indications for their teamwork and their family, social, religious and cultural responsibilities. Also the social questioning generates feelings of guilt or shame that caused not taking the medicines in public and if they did not find some space or timely omitted the corresponding dose. Rand (2002) points out a type of non-adherence therapeutic called

erratic adherence that is due to doses forgotten for various causes, including holidays or holidays, also tight schedules or complex. Although there is a good intention to comply with the treatment there are complications due to the complexity of their lifestyle, which interferes with adherence and does not prioritize the adequate control of the disease with pharmacotherapy. Similarly, people with complicated work schedules or chaotic lifestyles have difficulty establishing habits of a new medication regimen; In the same sense, during the week there is good adherence but on weekends or holidays there is a disruption in the pharmacotherapeutic routine. This same phenomenon was observed in university students, because they have complicated and mixed class schedules, academic activities and tasks, extracurricular activities (arts and sports) in addition to social activities that influence erratic adherence behavior in young students.

The correct intervention of the pharmacist allows to recall and increase compliance by the patient, some studies show that the use of contemporary technology helps to increase levels of compliance (Quiroga Garza, 2012, García Cedillo and Morales Antúnez, 2015). In this study the students better adapted to the new communication technologies use them to remember the hours of the intake, as happened with the use of the cell phone where they program alarms so that they know when to take it; Some commented that they have seen older family members who note when to take and what is the purpose of each drug in the secondary packaging (boxes) and that they thought it was good to keep in mind the proper use of the drug. The new generations so adapted to the technology must discover and value the use of tools not so modern but equally useful, as the use of the pillbox that allows to classify and to control the administration of the doses. Perhaps the use of technology is more widespread and intervenes in a non-predictable way both negatively and positively, this aspect can be studied in further research to better elucidate its effect on the patient's behavior regarding their medication. The health personnel should focus on the patient's personal strengths and help him interpret the difficulties as a challenge and not as a threat (Martín Alfonso and Grau Abalo, 2004; Marayo Alonso et al., 2008; Soria Trujano et al., 2011).

Knowing that male students are less attached to treatment should lead to greater monitoring of therapy compliance; Feeling young and healthy acted negatively because patients who did not adhere reported that they were not responsible for not perceiving imminent danger

or immediate prejudice; This psychological factor of security adversely affects people, if someone ingests a substance and dies it is more likely that those who experienced that fact do not drink that substance, instead if a substance whose chronic toxicity is ingested is ingested and is not well appreciated that it is the Cause of death there is more possibility that a risk is not perceived, as in the case of smokers who know that it can cause cancer but since smoking can be smoked for a long period without affecting health clearly, they do not recognize The risk and there is no behavioral change despite having the intellectual knowledge (Soria Trujano et al., 2012, Vidal Corominas and Chamblás García, 2014, Chacón et al., 2015).

It also happened that students took no precaution to put their "medicines" in a suitable place, and three men and one woman requested that they be given the medicines again because some minor family member (children under six years) had ingested the Placebos. This warns about the need to form a health safety culture and awareness of the good storage and shelter of medicines, which should not be left within the reach of children. The family environment plays an important role in compliance with pharmacotherapy because the family members who are aware of and committed to the health of the patient help to monitor, motivate and organize to follow the indications and recommendations of health personnel (Meraya Alonso et al., 2008; Soria Trujano et al., 2012; Alba Dios et al., 2015; Chacón et al., 2015).

This coincides with some researchers who point out that lifestyles exert an important effect on the health of the patient and must be integrated as part of the therapeutic measures for the control of his illness; The set of behavioral habits of the patient influences the follow-up of the therapeutic regimen, so it is necessary to investigate what patterns of behavior have and to use them to reinforce beneficial behaviors that favor treatment (Dilla et al., 2009; Martín Reyes, 2010; Urzúa et al., 2012; Chacón et al., 2015).

The possible diagnosis of the evolution of health status or disease affects the compliance of the treatment, whether or not the patient perceives that taking the medication will be healthy (as in the case of a mild infectious disease) Although the treatment will continue, the disease will not disappear (Martín Reyes, 2010, Soria Trujano et al., 2011, Alba Dios et

al., 2015). It is advisable to train health personnel with psychological tools that allow them to use personal resources of the patient to favor adherence to treatment by raising their commitment, their active and participatory nature, their self-determination and responsibility; That is, the patient should be prevented from generating harmful stresses and frustrations and favor positive attitudes that encourage personal growth (Merayo Alonso et al., 2008, Soria Trujano et al., 2011, Chacón et al., 2015). Some researchers say that the family is the first network of social support for the patient, because of their protective action against adversity and serves as a positive factor in promoting healthy habits and preservation of health; In addition, it generally leads to affective support for the patient (Soria Trujano et al., 2012; Vidal Corominas and Chamblás García, 2014, García Cedillo and Morales Antúnez, 2015).

Conclusion

The results obtained in this study suggest that gender and the complexity of the therapeutic regimen are two factors that influence therapeutic adherence because women were better attached to treatment than men, although both sexes showed lower compliance when multidose increased. Comparing the two methods of evaluation of therapeutic adherence, it was observed that male patients tend to lie more than female patients because in the self-evaluation questionnaire they reported a higher compliance compared to the actual compliance estimated by the method of counting tablets. Studying healthy students simplifies the analysis of the process of therapeutic adherence, since there are no psychological and social aspects related to a specific disease; Among the factors identified in this study that hinder therapeutic follow-up are having a complex itinerary with multiple daily activities of different kinds (academic, artistic, sports and sociocultural) and the lack of an effective means as a reminder. A significant percentage of students programmed their cell phone to monitor the medication route and with alarms to warn that medication should be administered. Most of the students did not know how to use the pillbox, this fact constitutes an opportunity for improvement that should be considered in health education and awareness of young patients because the pillbox is a useful resource for a better organization and compliance with the dosage guidelines.

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