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Projection of mental health pathology in medical students and its relationship with teaching and the COVID-19 pandemic.

Proyección de patología de salud mental en estudiantes de Medicina y su relación con la docencia y pandemia por COVID-19.

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Summary. Introduction: There is a high prevalence of mental health (MS) pathologies in medical students. It is possible that the COVID-19 pandemic has increased them, affecting the personal and academic sphere. Objectives: To analyze the MS, the impact of COVID-19, the changes in the perception of the educational environment and the clinical internship in relation to psychopathologies and the follow-up by Primary Care (AP) and the Center for Applied Psychology (CPA).) from the Autonomous University of Madrid (UAM). Methods: The MeMind application was used to collect sociodemographic variables, screening, and responses to the educational environment and clinical practice questionnaires from 201 UAM medical students (14.6%). Results: 44% have low well-being; 31.5%, possible depression; 31.7%, possible anxiety; 55.2%, risk of addiction; 17.3%, suicidal ideation; 8.1% possible psychosis and 15.1% consumption of psychotropic drugs. 16.2% are followed up by AP/SM and 2% by the CPA. Low well-being and the risk of depression are higher in the first years and decrease in the sixth year. However, the consumption of psychotropics increases during the race. Regarding the pandemic, low well-being, possible anxiety, and depression are associated with individual problems (eg, economic, personal loss). Online teaching appears to have had a negative impact on the educational environment and clinical internship, and thus on well-being and depression. Conclusions: the pandemic has affected mental health, the educational environment, and the clinical internship of UAM medical students.

Keywords: Educational Climate, University Students, Medical Degree, Clinical Practices, Mental Health, COVID-19

Resumen. Introducción: Existe una alta prevalencia de patologías de salud mental (SM) en estudiantes de medicina. Es posible que la pandemia del COVID-19 los haya incrementado, afectando el ámbito personal y académico. Objetivos: Analizar la SM, el impacto de la COVID-19, los cambios en la percepción del entorno educativo y del internado clínico en relación con las psicopatologías y el seguimiento por parte de Atención Primaria (AP) y del Centro de Psicología Aplicada (CPA) de la Universidad Autónoma de Madrid (UAM). Métodos: Se utilizó la aplicación MeMind para recolectar las variables sociodemográficas, el tamizaje y las respuestas a los cuestionarios de ambiente educativo y prácticas clínicas de 201 estudiantes de medicina de la UAM (14,6%). Resultados: 44% tienen bajo bienestar; 31,5%, posible depresión; 31,7%, posible ansiedad; 55,2%, riesgo de adicción; 17,3%, ideación suicida; el 8,1% posible psicosis y el 15,1% consumo de psicofármacos. El 16,2% lleva seguimiento por AP/SM y un 2% por el CPA. El bajo bienestar y el riesgo de depresión son más altos en los primeros cursos y disminuyen en el sexto año. Sin embargo, el consumo de psicotrópicos aumenta durante la carrera. Con respecto a la pandemia, el bajo bienestar, la posible ansiedad y la depresión se asocian con problemas individuales (p. ej., pérdida económica, personal). La docencia en línea parece haber impactado negativamente en el entorno educativo y el internado clínico y, por tanto, en el bienestar y la depresión. Conclusiones: la pandemia ha afectado a la salud mental, al entorno educativo y al internado clínico de los estudiantes de medicina de la UAM.

Palabras clave: Clima Educativo, Estudiantes Universitarios, Grado de Medicina, Prácticas Clínicas, Salud Mental, COVID-19

1. Introduction

Before the COVID-19 pandemic, the mental health levels of health professionals were higher than those of the general population. Specifically, in young resident and assistant physicians, the prevalence of depression was 28.8% (1) and 29% (2) respectively, while in the general population the prevalence was around 7% (3). Specifically, a British cohort (4) places this prevalence at 50.8% among medical students, values higher than those reported for students of other university degrees and higher (5) than those of assistants and residents. Other studies in different countries have found similar and even higher prevalences (6-7), showing differences according to the course to which the students analyzed belong (8). With COVID-19, this situation has worsened (9).

During the 2019/2020 academic year, a study (DABE Project) was carried out by the State Council of Medical Students (CEEM) and by the Spanish Society of Medical Education (SEDEM) on mental health in medical students nationwide (10), with the participation of 300 UAM students. The study estimated a prevalence of depressive symptoms of 35.4%, high burnout 36%, severe anxiety 25.7%, suicidal ideation 11%, and habitual use of psychotropic drugs 17.3%. With the COVID-19 pandemic, the prevalence of depression and anxiety has remained high and has even increased (11-14) in the student body, also fostered by social distancing and the loss of face-to-face (15), as well as with due to the adaptation to the telematic format of teaching and the loss of practical hours (16).

Given these data, the idea of making a prospective project approaching the problem from three perspectives arises. The first is prevention, trying to change at a structural level what is causing this emotional distress and these pathologies to the students, as well as training from the first courses to prevent these pathologies from appearing. The second, early detection of these pathologies to try to give a series of recommendations to students. And the third, to analyze how many students receive psychological help and of what type, as well as to analyze the services offered by the Universities. In the case of the Autonomous University of Madrid (UAM), the Center for Applied Psychology (CPA).

The present work arises as a pilot study of said project. The main objective is to estimate the percentage of students with potential risk of suffering from depression, anxiety, alcohol dependence and suicidal ideation. As well as analyzing trend changes by course and gender. A screening method for common mental disorders (anxiety and depression) (TMC), suicidal ideation, addictions and psychosis has been used to have an approximation of the situation of UAM Medicine students. The educational climate and the perception of the quality of the practices will be compared to see if the telematic adaptation has been received negatively by the student body and if this implies a loss of well-being. Finally, it will be analyzed how many students receive follow-up by Primary Care (AP), a Mental Health (SM) service or by the CPA, comparing it with the results of the Mental Health screening .

2. Methods

2.1 Study design. Exploratory analytical cross-sectional observational study.

3.2 Place of study and target population. Students who are studying the Degree in Medicine at the Autonomous University of Madrid in the 2020/2021 academic year.

3.3 Sample size. No sample size calculation was performed because an attempt was made to obtain data from the entire target population. The resulting size is the total number of students who met the inclusion criteria, who downloaded the application and took the survey. However, a response rate was estimated based on the total population of enrolled students (1,374) and on the prevalence results of the main variables of this study in other similar studies (10, 13) with adequate confidence and precision. this percentage being 15% (209 responses).

3.4 Inclusion and exclusion criteria . All UAM Medicine students who downloaded the MeMind mobile application, entered the project password, and answered the first question favorably were included in the study; "Are you a Medicine student at the Autonomous University of Madrid and you voluntarily agree to participate in this study?". This question was accompanied by the Informed Consent (IC) that the students had to read before enrolling. Students who did not respond favorably to the question about the IC and, therefore, were not UAM Medicine students or did not accept the IC were excluded.

3.5 Ethical considerations and anonymity. The protocol for this study was approved by the Research Ethics Subcommittee of the Faculty of Medicine of the Autonomous University of Madrid. The data of all the students is encrypted, and the researchers of this study do not have access to their identity.

3.6 Instruments . Students were asked to answer a series of questionnaires grouped into eight domains presented in Annex I. They include The Well-being Index to assess Well-being, The Patient Health Questionnaire- 9 for Possible Depression, Alcohol Use Disorders Identification Test- 3 for Alcohol, Drug Abuse Screening Test-3 for other drugs, The Columbia-Suicide Severity Rating Scale-6 for Suicidal Ideation and 4 questions to assess possible Psychosis (18), Dundee Ready Education Environment Measure (DREEM) -12 for the Educational Climate (19-20), the 5 questions of the social sphere of the DREEM, a questionnaire on clinical practices developed by the Surgery Service of the Jiménez Díaz Foundation (21) and own questions on the impact of COVID and the events experienced since the start of the pandemic, follow-up by PC and/or SM services and by the CPA and on prevention strategies.

3.7 Variables to study. All the variables studied are listed by domains in Annex II. The variables of domain A.II "Screening" were grouped into "Summary" and "Possible presence of MS pathology" for each of the diseases. The variable "Summary Who_Five" was dichotomized into "High-Low Well-being". The "Possible Anxiety" was grouped together with "Possible Depression" in the variable "Common Mental Disorder (TMC)", the "Possible alcoholic risk" and "Possible Drug Addiction" were

grouped in the variable "Addiction Risk" and the "Possible Ideation Suicidal" and "Psychosis" in "Possible Suicidal Ideation and/or Psychosis". The variables of the "Educational climate" domain were grouped into "Summary", "Perception Groups" (1: Very negative, 2: negative, 3: positive, 4: very positive) and "Positive-Negative Perception" for the educational climate and the quality of pre and post telematic teaching practices. In addition, the variable "Group Change" was created by subtracting the post-telematic teaching group from the pre-teaching perception group. At the same time, the variables "Change from Group to the Worse" of perception of educational climate and quality of practices were dichotomized. Finally, the variables "Active SM Follow-up", "Active AP Follow-up" and "Active CPA Follow-up" were grouped into the variable "Active Follow-up by AP and/or SM".

3.8 Data Collection. The MeMind application was used to generate a form that was distributed to the medical students of the UAM, thanks to the class delegates and the coordination of the Student Council of the Faculty of Medicine of the UAM (CEFMUAM). In said message, a link was attached to download the application and a code through which the student was introduced to this specific project. The entire questionnaire was completely anonymous and the questions appeared sequentially. The collection of information lasted twenty days from the beginning of the responses to the questionnaire, being possible to enroll in the project between April 5 and 30 of the same month. Once registered in the application, they were presented with a questionnaire to fill out with all the questions from domain A, questions 1-17 from domain D, questions 1-5 from domain F and all the questions from domain B. The second day questions from the CI domain were enabled, on the third day the questions from the C-II domain, on the fourth day the questions from the C-III and C-IV domain, on the fifth day the questions from the E domain and on the sixth day the questions from the G domain During every day they received notifications on their mobile phones and reminders through WhatsApp groups to answer daily questions that, if they were not answered that day, would remain enabled until the next day.

3.9 Statistical analysis. Statistical analyzes were carried out with the IBM® SPSS® Statistics program version 20. Only students who met the inclusion criteria were included in the study of each of the variables. Furthermore, losses were not included in the statistical analysis. The Kolmogórov-Smirnov test was applied to each variable. In the case of the quantitative variables that followed the normal distribution, the mean (M) and the standard deviation (SD) were used as a measure of central tendency and dispersion, while in those that did not follow said distribution, the median (Mn) was used. and the interquartile range (IQR) instead. The categorical variables were summarized in proportion (%) and frequency (n). In addition, the Levene test was applied to assess the homoscedasticity of the variables. Parametric tests were applied for the variables that followed the criteria and non-parametric tests for the variables that did not, considering the level of significance (p) <0.05 statistically significant. The chi-square test was used to compare the variables "Possible presence of MS Pathology" with the sociodemographic variables "Gender", "High-low grade" and "6th grade". For the comparison of the possible presence of MetS pathologies with the COVID-19 impact variables, the chi-square test was used to compare the variables "Possible presence of MetS pathologies" with the COVID impact variables of domain B and Events since the domain confinement F.

For the descriptive study of the perception of educational climate and quality of practices, paired analysis and comparison with the course variable, the McNemar test was used to compare the variables "Positive-Negative Perception" post-telematic teaching of the educational climate and the quality of internships with their respective telematic pre-teaching counterparts. The chi-square test was used to contrast the variables "Change from Group to the Worse" of the educational climate and the quality of the practices based on the variable "Course". For the comparison of the perception of educational climate and quality of practices with high-low well-being, possible depression and anxiety, the chi-square test was used to compare the variables "High-Low Well-being", "Possible Depression" and "Possible Anxiety". based on the "Positive-Negative Perception" of the educational climate and the quality of the practices. Finally, for the analysis of the percentage of students who

would benefit from consulting with a specialist and the number of students who use the CPA, contingency tables were made between the variables "Common Mental Disorder", "Addiction Risk", "Possible Suicidal Ideation and/or or Psychosis" and "Active follow-up by AP and/or SM" and a Venn diagram was made to represent the intersections.

3. Results

A total of 211 students were registered, of whom 201 signed the informed consent, 14.6% of the total number of students enrolled in the 2020/21 academic year (a total of 1,374). The first day form was answered by all students. On the second day, 159 students participated in the first part and 119 in the second part, which did not have to be answered by the 1st year students. On the third day, only the students of clinical courses (4th-6th) had to answer, answering 66 students. On the fourth day they had to answer 5th and 6th grade students, answering 47 students. The fifth day form was open to all students, 107 students responded and the sixth day form, also open, by 102.

3.1 Demographic characteristics of the study population. A total of 145 women participated, 14.8% of those enrolled (980) and 56 men, 14.2% (394). There is no data on students enrolled by course. Of them, 40 were from 1st grade, 36 from 2nd, 24 from 3rd, 21 from 4th, 37 from 5th and 43 from 6th participated.

3.2 Study of the possible presence of MS pathologies and comparison with sociodemographic variables. According to the screening results, 44% of the students interviewed had Low Well-being; 31.5%, Possible Depression; 31.7%, Possible Anxiety being the combination of both (TMC variable), 44.3%. 55.2% had Addiction Risk (including Alcohol and other drugs); 17.3%, Suicidal Ideation; 8.1%, Possible Psychosis and 15.1% consumed psychotropic drugs.

No significant associations have been found between any of the "Possible pathology" variables based on gender. As shown in Table 1, significant associations were obtained based on the grouping variable "Low-High Course" for "High-Low Well-being" ($\chi 2$ (1) = 9.012, p<.003) and "Consumption of psychotropic drugs" ($\chi 2$ (1) = 3.955, p<.047). This seems to represent the fact that, according to the odds ratio, the probability that students have Low Well-being is 2.449 (CI=1.358-4.418) times higher for students in Low Course (1st-3rd) than for those in Course High (4th-6th). On the contrary, according to the odds ratio, the probability that students consume Psychoactive Drugs is 0.428 (CI=0.183-1.004) lower for Low Course students (1st-3rd). Significant associations were also found based on belonging to 126th grade for "High-Low Well-being" ($\chi 2$ (1) = 17.241, p<.0001, "Possible Depression" ($\chi 2$ (1) = 5.978, p<.014) and "Consumption of Psychoactive Drugs" ($\chi 2$ (1) = 3.942, p<.047), with the probabilities of having Low Well-Being and Possible Depression respectively 0.205 (IC=0.093-0.452) and 0.324 (IC=0.127-0.826) lower than that of the rest of the courses and that of the consumption of Psychoactive Drugs 2,370 (CI= 0.994-5,654) times higher.

3.3 Comparison of "Possible presence of MS pathology" with the variables of domains B and F (impact of COVID-19). As shown in Table 2, significant associations were obtained between "Presence of economic problems" and "High-Low Well-being" ($\chi 2(1)=5.579$, p<0.018) and "Possible Depression" ($\chi 2(1)= 6.904$, p<0.009), between "Death of a relative or close person" and "Possible Depression" ($\chi 2(1)= 5.604$, p<0.018) and between "Admission of a relative" and "Possible Anxiety" ($\chi 2(1)= 5.042$, p<0.025). This seems to represent that, based on the odds ratios, the probabilities of having Low Well-being and Possible Depression in students with Presence of economic problems are 5.364 (CI=1.152-24.976) and 3.977 (CI=1.336-11.939) times greater than in students without Presence of economic problems. The probability of Possible Depression in students with Death of a relative or close person is 2.273 (CI= 1.142-4.521) times greater than those without death of a relative or close person and the probability of Possible Anxiety in students with Income of a relative is 2,094 (CI=1,092-4,016) higher than the rest. No significant associations have been found for the rest of the variables in domains B and F and the presence of MS pathology.

Table 1 . Comparison of the variables "Possible presence of MS pathology" based on the variables "Low-High Grade" and "Sixth Grade". Values are mean and SD in parentheses. *, p<0.05; **, p<0.01; ***, p<0.001.

		Low Course	High Course	Total	No Sixth	Sixth
		n=100	n=101	n=201	n=158	n=43
Welfare	High	33 (35.1)**	53 (57)**	86 (46)	56 (38.1)***	30 (75)***
	Low	61 (64.9)**	40 (43)**	101 (54)	91 (61.9)***	10 (35)***
Depression	No	61 (68.5)	63 (68.5)	124 (68.5)	91 (64.1)*	33 (84.6)*
	Possible	28 (31.5)	29 (31.5)	57 (31.5)	51 (35.9)*	6 (15.4)*
Anxiety	No	59 (62.8)	70 (73.7)	129 (68.3)	97 (65.5)	32 (78)
	Possible	35 (37.2)	25 (26.3)	60 (31.7)	51 (34.5)	9 (22)
TMC	No	47 (51.1)	56 (60.2)	103 (55.7)	75 (51.4)*	28 (71.8)*
	Possible	45 (48.9)	37 (39.8)	82 (44.3)	71 (48.6)*	11 (28.2)*
Addiction Risk	No	33 (44.6)	36 (45)	69 (44.8)	56 (48.3)	13 (34.2)
	Yeah	41 (55.4)	44 (55)	85 (55.2)	60 (51.7)	25 (65.8)
Suicide risk	No	73 (83.3)	75 (82)	148 (82.7)	112 (80)	36 (92.3)
	Yeah	16 (16.7)	15 (18)	31 (17.3)	28 (20)	3 (7.7)
Psychosis	No	81 (88)	90 (95.7)	171 (91.9)	132 (90.4)	39 (97.5)
	Possible	11 (12)	4 (4.3)	15 (8.1)	14 (9.6)	1 (2.5)
Psychodrugs	No	83 (90.2)*	75 (79.8)*	158 (84.9)	128 (87.7)*	30 (75)*
	Yeah	9 (9.8)*	19 (20.2)*	28 (15.1)	18 (12.3)*	10 (25)*

Table 2 . Comparison of the variables "Possible presence of pathology" based on the variables "Family Income", "Family Death" and "Economic Problems". Values are mean and SD in parentheses. *, p<0.05; **, p<0.01.

Family and economic COVID impact		No Family income	Family Income	No Death	Death	No financial problems	Economic problems	Total
		n=129	n=58	n=136	n=50	n=165	n=16	n=187
Welfare	High	62 (50)	20 (36.4)	59 (44.7)	23 (50)	79 (49.4)*	2 (15.4)*	82 (45.8)
	Low	62 (50)	35 (63.6)	73 (55.3)	23 (50)	81 (50.6)*	11 (84.6)*	97 (54.2)
Depression	No	89 (72.4)	32 (58.2)	94 (72.9)*	26 (54.2)*	114 (72.6)**	6 (40)**	121 (68)
	Possible	34 (27.6)	23 (41.8)	35 (27.1)*	22 (45.8)*	43 (27.4)**	9 (60)**	57 (32)
Anxiety	No	94 (73.4)*	33 (56.9)*	96 (71.1)	31 (62)	118 (72)	8 (50)	127 (68.3)
	Possible	34 (26.6)*	25 (43.1)*	39 (28.9)	19 (38)	46 (28)	8 (50)	59 (31.7)
TMC	No	74 (59.2)	27 (47.4)	78 (59.1)	23 (46.9)	95 (59.4)	6 (37.5)	101 (55.5)
	Possible	51 (40.8)	30 (52.6)	54 (40.9)	26 (53.1)	65 (40.6)	10 (62.5)	81 (44.5)

3.4 Descriptive study of the perception of educational climate and quality of practices, paired analysis and comparison with the course variable. Likewise, significant differences were found (figure 1) for "Negative-Positive Perception-Educational Climate" before and after telematic teaching (p<.0001) and for "Negative-Positive Perception-Quality of Practices" pre and post telematic teaching (p< .007). Significant associations were also found (figure 2) between the variable "Course" and the variables "Change from Group to Worse-Perception of Educational Climate" ($\chi 2(4)= 9.628$, p<0.047) and "Change from Group to Worse- Perception of Quality of Practices" ($\chi 2(1)= 11.237$, p<0.001). This seems to represent that, based on the odds ratio, the probability of Group Change to Worse-Perception of Quality of Practices in 6th grade is 0.109 (CI=0.27-0.432), lower than in 5th grade.

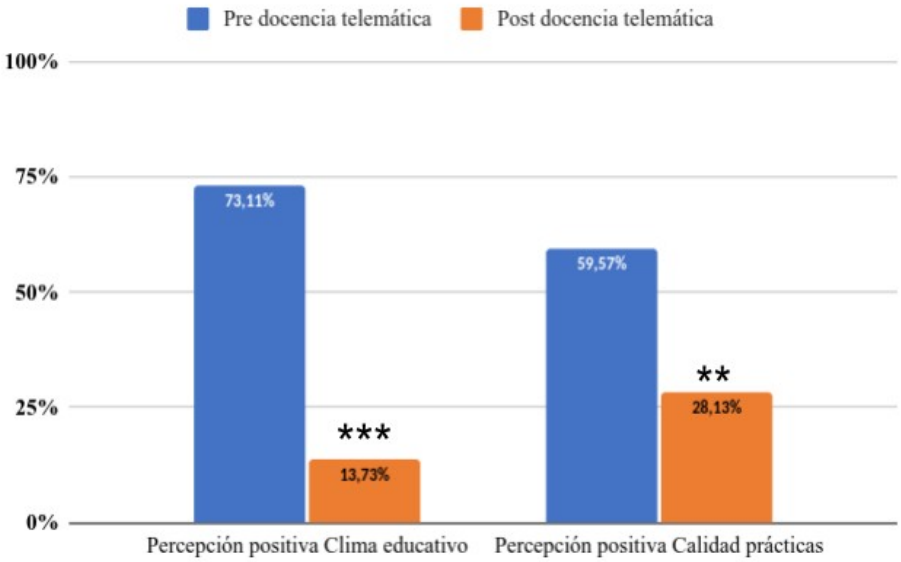


Figura 1. Comparison between "Positive Perception Educational Climate" and "Quality of Practices" before and after telematic teaching. **, p<0.01; ***, p<0,001

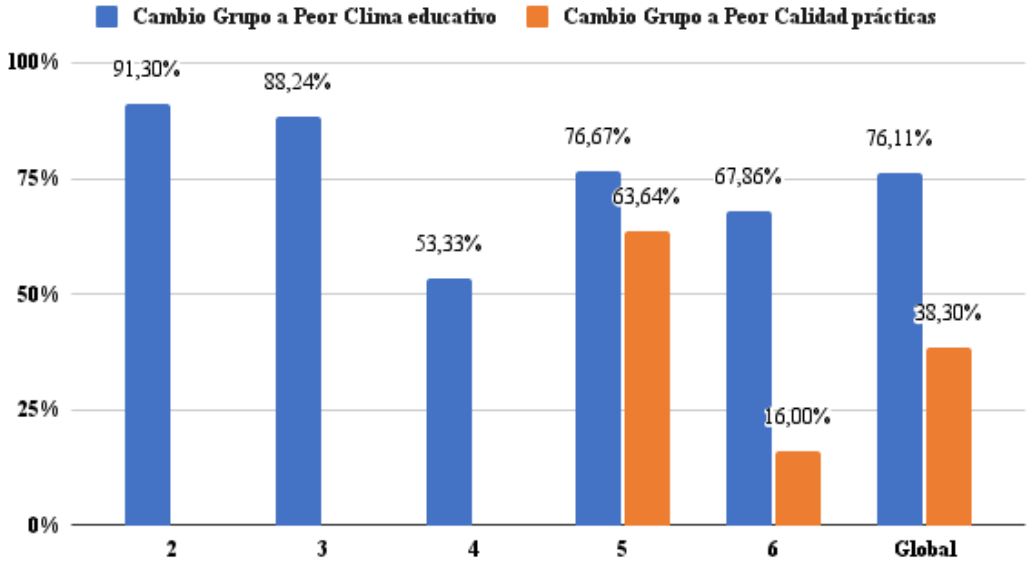


Figura 2. Comparison between "Change of Group to Worse Educational Climate" and "Worse Quality of Practices" depending on the course (2nd to 6th). *, p<0.05 in change of group to worse educational climate (2 to 6); p<0.001 instead of the group with the worst quality practices (5 vs 6).

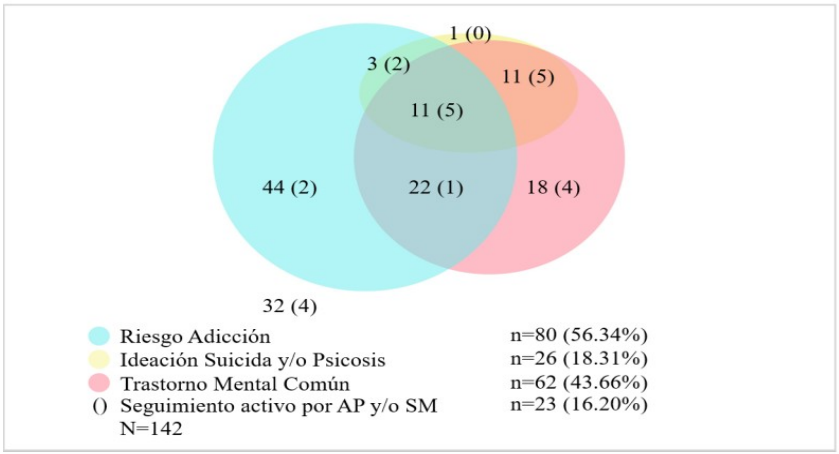
3.5 Comparison of perception of educational climate and quality of practices with high-low well-being, possible depression and anxiety. As can be seen in table 3, significant associations were found between the variable "High-Low Well-being" and "Positive-Negative Perception of the Quality of Post-telematic Teaching Practices" ($\chi 2(1)= 7.209$, $p<0.007$) and " Group Change to Worse-Quality of Practices" ($\chi 2(1)=8.803$, $p<0.003$). This seems to represent that, based on the odds ratio, the

probability of having Low Well-being having a Positive Perception of the Quality of Post-pandemic Practices is 0.169 (CI=0.042-0.676) lower than those with Negative Perception, while the probability of having Well-being Low having Group Change for the Worse in the Perception of the Quality of the Practices is 7.057 (CI=1.835-27.144) higher than in those who do not change the group for the worse. Significant associations were also found between the variable "Possible Presence of Depression" and "Change from Group to Worse-Quality of Practices" ($\chi 2(1)= 10.154$, $p<0.001$). This seems to represent that, based on the odds ratio, the probability of having Possible Presence of Depression having changed the group of perceived quality of practices for worse is 12.0 (CI=2.163-66.548) greater than in those who do not change groups of perception of quality of practices to worse.

3.6 Analysis of the percentage of students who would benefit from consulting with a specialist. From this analysis, 86 students who did not complete the questionnaire completely were excluded. The results are developed in Figure 3. It should be noted that of 142 students, 23 are followed up by AP and/or SM and that 32 of them do not have Risk of Addiction, TMC or Suicidal Ideation and/or Psychosis. Regarding the CPA, 47.3% of the respondents were aware of its existence before the survey was developed, having been used by 4 students (2.2%) and 3 of them currently being followed up.

Table 3. Comparison of the variables "Possible presence of pathology" based on the variables "Perception of quality of Good-Bad Practices" and "Change of Groups of Practices to Worse". Values are mean and SD in parentheses. **, p<0.01; ***, p<0.001.

		Perception Quality Practices			Group Change Practices To Worse		
		Good	Bad	Total	No	Yeah	Total
		n=18	n=45	n=63	n=28	n=18	n=46
Welfare	High	13 (81.2)**	19(42.2)**	32 (52.5)	19 (73.1)**	5 (27.8)**	24 (54.5)
	Low	3 (18.8)**	20 (57.8)**	29 (47.5)	7 (26.9)**	13 (72.2)**	20 (45.5)
Depression	No	15 (83.3)	27 (62.8)	42 (68.9)	24 (92.3)***	9 (50)***	33 (75)
	Possible	3 (16.7)	16 (37.2)	19 (31.1)	2 (7.7)***	9 (50)***	11 (25)
Anxiety	No	16 (88.9)	33 (73.3)	49 (77.8)	23 (82.1)	12 (66.7)	35 (76.1)
	Possible	2 (11.1)	12 (26.7)	14 (22.2)	5 (17.9)	6 (33.3)	11 (23.9)
TMC	No	14 (77.8)	25 (56.8)	39 (62.9)	21 (77.8)	9 (50)	30 (66.7)
	Possible	4 (22.2)	19 (43.2)	23 (37.1)	6 (22.2)	9 (50)	15 (33.3)



Se muestra en frecuencias absolutas el número de estudiantes con resultado positivo para "Riesgo Adicción", "Ideación Suicida y/o Psicosis" y "Trastorno Mental Común", así como los negativos para los tres en la parte inferior. En las intersecciones están representados aquellos estudiantes que poseen varias características. Entre paréntesis se muestra el número de ellos que llevaba Seguimiento Activo por un servicio de AP y/o SM para cada área.

Figura 3. Diagrama de Venn Riesgo Adicción, Ideación Suicida y/o Psicosis, Trastorno Mental Común y Seguimiento Activo.

4. Discussion

Our results are consistent with those of the DABE Project (10) and the JAMA meta-analysis (17). In the DABE Project (10), 41% of the students had depressive symptoms, 21.5% Severe Anxiety and 11% Suicidal Ideation while in our study these values are 31.5%, 31.7% and 17.3% respectively. . These differences in anxiety and depression may be due to the use of different diagnostic questionnaires, as well as the fact that, in the case of Anxiety, it is only counted when it is severe in the DABE Project. In this study, the questionnaires were used for Screening purposes while those used in the DABE Project were not (Beck for Depression, STAI for Anxiety and question 9 of the Beck questionnaire for Suicidal Ideation). In the case of the JAMA meta-analysis (17), in which no study in the Spanish population was included, the prevalence of Depression is 27% and Suicidal Ideation is 11.1%. Suicidal Ideation seems to be higher in the UAM than in the rest of Spain and that obtained in the JAMA meta-analysis; however, our results do not agree with the bibliography in that no significant differences have been found in the Possible Depression variable between men and women as if it occurs in numerous studies (10 , 22-23). This may be due to the fact that the sample size of the present study is smaller or the fact that a more sensitive and less specific screening method was used.

The course is one of the factors that does affect the different psychopathologies. Students in the 1st-3rd year have higher levels of Low Well-being due to multiple factors, among which can be found the high demand of those courses, the lack of clinical practices or the acclimatization to the university climate. However, these students consume less psychoactive drugs, increasing consumption as the courses progress, being maximum in 6th grade. These students, in turn, have greater Well-being and less Possible Depression. This could be attributable to the low academic requirement of the 6th year due to the absence of exams, the resilience gained during the degree (23), the fact that their clinical practices were not affected by the pandemic, and the choice of rotations by the student himself.

COVID-19 and home confinement have had a greater impact on low socioeconomic groups (24). Together with other variables, such as lack of socialization, (11) it has increased the prevalence of Mental Health pathologies in the general population (25) and in young people (26). This could be reflected in the higher probability of students with financial problems since the pandemic began to have Low Well-Being and Possible Depression and of students who have had a relative admitted or deceased to have Possible Anxiety or Possible Depression, respectively. However, the pandemic has not only had an impact in this way on the student body. Since March 2020 teaching has completely changed. It was necessary to make an adaptation to the telematic format of theoretical teaching and an adaptation with a reduction in the days for practices. And, faced with this paradigm shift, the question arose as to how the students valued this change and how the change could have influenced the Well-being and Mental Health of the student body. As can be seen in figure 4, to assess the change, the variables "Perception Group", "Positive-Negative Perception" and "Change from Group to Worse" were created from the DREEM questionnaire score and the Pre-Practices scale. and post telematic teaching in the same way for both.

The student body has a worse positive perception both for the educational climate post telematic teaching (14%) compared to the pre (73%) and for the quality of the practices, 28% and 60% respectively. The loss of face-to-face, socialization (15) and the loss of rotation days in clinical courses can be causes of it. But, is there a relationship between the perception of the educational climate and the pathology of SM? Regarding the main Screening variables, no relationships were found with the perception of the educational climate. This does not agree with the bibliography found in which students with a negative perception were 2.71 times more likely to suffer from Depression and 2.59 times more likely to suffer from Anxiety (27) . However, relationships were

seen with the quality of the practices. Having low Well-being is more frequent in students with a negative perception and in those who have changed from group to worse who, in addition, are 12 times more likely to have Possible Depression. This may be due to the importance of clinical internships for students who sometimes take up a large part of their day, help them decide their future employment and, in addition, contribute to socialization added to the high academic demand of the 5th year. Finally, given the Screening data, the following questions also arose: how many students need to go to primary care or mental health services? How many students are doing so? Are we doing something to prevent them from developing mental health pathologies? ?

The study reveals that, given the high prevalence of "Addiction Risk", "Suicidal Ideation and/or Psychosis" and "Common Mental Disorder", students would benefit from awareness campaigns on the consumption of alcohol and other drugs and to consult with an AP and/or SM specialist. This follow-up is carried out by 16.20%, agreeing with the JAMA meta-analysis in which 15.7% of students with depression received some type of follow-up (13). The UAM offers psychological attention to students at the Center for Applied Psychology (CPA) of the Faculty of Psychology at a reduced price (€31). This service is known by 47.3% of those surveyed, being used by only 4 people (2.2%).

One of the reasons why the CPA is not used may be the distance between the Faculty of Medicine and the hospitals attached to the Cantoblanco Campus, which may benefit from having a similar service in the Faculty of Medicine and/or in the 21 affiliated hospitals. Likewise, it would be necessary to guarantee that all students could receive follow-up regardless of the price, since Possible Depression is more frequent in students who have had financial problems since the start of the pandemic. Therefore, to benefit medical students as much as possible, the future prospective project should focus on:

- Study how to prevent the appearance of MS pathologies in the student body and analyze resilience training as a protective factor.
- To delve into which elements of the educational climate and clinical practices have the most influence on the SM of the student body in order to propose improvements.
- Test technological tools for the early detection of MS pathologies and advice.

4.1 Limitations. This is a cross-sectional observational study carried out in 2020/2021 in which only the responses of students who decided to voluntarily participate in the study are included, causing differences in the sample size between the different courses and introducing a certain bias of selection. There is a 50% decrease in the number of people who answer the questions in the MeMind application between the first and the last day. For future work, it would be necessary to analyze what makes students stop answering the questionnaires. The direct comparison of Mental Health pathologies with other studies has been difficult because the same questionnaires have not been used. To all this, we must add the memory bias that answering the questions about the perception of the educational climate and the quality of the telematic pre-teaching practices can entail one year after it began.

5. Conclusions

- The positive values for Screening for MS pathology are similar to those found in the DABE Project and in the JAMA meta-analysis, Possible Depression 31.5%; Possible Anxiety, 31.7%; TMC, 44.3%; Addiction Risk, 55.2%; Suicidal Ideation, 17.3%; 8.1%, Possible Psychosis and 15.1%, consumption of psychotropic drugs. Suicidal Ideation seems to be slightly higher in the UAM than in the rest of Spain (11%) and in the JAMA meta-analysis (11.1%). We have not found differences in terms of gender, but we have found differences for the course, with the probability of having Depression in 6th grade less than 22 in the rest and of having Low Well-Being higher in grades 1-3. On the contrary, the use of psychotropic drugs is greater in these

courses. Resilience training could prevent the development of Depression and other psychopathologies.

- The perception of the educational climate and the quality of the practices has worsened since the start of telematic teaching, with the courses where it has worsened the most 2nd for the educational climate and 5th for the quality of the practices. Students with poor perception of practices are more likely to have Low Well-Being and Possible Depression. The social aspect and the decrease in hours in practices may be one of the causes of this event.
- A large number of medical students test positive in at least one of the screenings and, therefore, should consult with an AP doctor or a SM specialist. Only 16.20% of the students have active follow-up for AP and/or SM. This, together with the fact that only 4 students of the total sample have used the CPA due to their distance from the Faculty, leads us to conclude that the student body would benefit from being able to consult a similar service in the Faculty of Medicine. or in affiliated hospitals. On the other hand, it would be beneficial to generate financial aid for students with economic problems since they are more likely to have possible depression.

Supplementary material: Annex I (Domains and Survey Questions) and Annex II (List of variables).

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