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***COMPASSION IN MEDICINE STUDENTS AND THE PRACTICE OF
EXTRACURRICULAR ACTIVITIES OF PHYSICAL EXERCISE:
DIFFERENCES BETWEEN SOLO AND GROUP PRACTICE?***

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**Compassion in medicine students and the practice of extracurricular activities of
physical exercise: differences between solo and group practice?**

*Compaixão em alunos de medicina e prática de atividades extracurriculares de exercício
físico: diferenças entre prática a solo e em grupo?*

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ABSTRACT

Introduction

Compassion is essential in the healthcare provider-patient relationship and can be improved through training and experiences. The decline in compassion among medical students, future healthcare providers, can theoretically be prevented through strategies such as physical exercise, which has been shown to improve social skills, self-life satisfaction, and mental health, leading to better patient care. However, no study before this one attempted to study the influence of individual or group practice in compassion levels of medical students.

Material and methods

A cross-sectional observational study was conducted via an online “Google Forms” questionnaire in medical students of “*Faculdade de Medicina da Universidade de Coimbra*”. The questionnaire included the compassion sub-scale of “Jefferson Scale of Physician Empathy- student version”, as well as inquiries about sex, course year, satisfaction with academic achievements, mean overall grade, physical exercise frequency and solo or group practice. Descriptive and inferential analysis was conducted.

Results

No association was found between individual or group physical practice and compassion or course year and compassion. However, compassion in female students (mean compassion score: 13.89 [7 - 49]) was higher than that in male students (mean compassion score: 15.87), as a lower score indicates higher compassion ($p=0.004$). Additionally, students who alternated between solo and individual physical practice achieved better mean overall grade ($p=0.007$). Students were found to engage more in group exercise in the latter stages of their course ($p=0.045$) and the most common compassion level observed in the sample was “Low”.

Discussion

The association of individual or group physical exercise habits and compassion was studied for the first time. Due to the importance of compassion in healthcare, any possible intervention capable of altering the most common compassion level of “Low” is essential. The increased tendency for group exercise in more advanced years may be a useful coping mechanism in dealing with increased stress and difficulties.

Conclusion

No influence of individual or group physical exercise practice was shown on compassion levels, mean overall grade or satisfaction with academic achievements. However, alternating between those was shown to positively impact mean overall grade, but further research is needed to confirm this effect.

Key words: Compassion, empathy, medical students, physical exercise, solo, group practice

RESUMO

Introdução

A compaixão é essencial na relação médico-doente e pode ser aumentada através de treinos específicos e de experiências. O declínio observado entre estudantes de medicina, futuros profissionais de saúde, ao longo do curso, pode, teoricamente, ser prevenido através de estratégias como o exercício físico que têm impacto notório no aumento das capacidades sociais, satisfação com a vida e saúde mental, levando assim a melhores cuidados de saúde. No entanto, nenhum estudo prévio a este procurou estudar a influência da prática de exercício a solo ou em grupo nos níveis de compaixão dos estudantes de medicina.

Materiais e métodos

Um estudo transversal observacional foi efetuado com a disponibilização de um questionário via “Google Forms” aos estudantes de medicina da “Faculdade de Medicina da Universidade de Coimbra”. Este questionário incluía a subescala da compaixão da “Escala de Jefferson de Empatia Médica- Versão Estudantes”, bem como questões relativas ao sexo, ano de curso, satisfação com o sucesso académico, média de curso e prática de exercício físico, mais especificamente a frequência e se a prática era feita individualmente ou em grupo. Estatística descritiva e inferencial foi, posteriormente, efetuada.

Resultados

Não foi detetada qualquer associação entre a prática de exercício físico individualmente ou em grupo e a compaixão total, nem entre o ano do curso e a compaixão. No entanto, a compaixão no sexo feminino (média: 13.89 [7 - 49]) foi superior à encontrada no sexo masculino (média: 15.87), já que um valor inferior corresponde a uma compaixão mais elevada ($p=0.004$). Estudantes que alternaram entre prática individual e em grupo, alcançaram média de curso superior ($p=0.007$). Os estudantes efetuaram mais prática em grupo face a individual nos anos de curso superiores ($p=0.045$) e o nível de compaixão mais comum foi “Baixo”.

Discussão

A associação entre prática individual ou em grupo de exercício físico e a compaixão foi, pela primeira vez, estudada. Devido à importância da compaixão na prestação de cuidados de saúde, qualquer intervenção capaz de alterar o nível mais comum de compaixão (“Baixo”) é essencial. A tendência para aumento da prática de exercício em grupo nos anos de curso

mais avançados pode ser uma estratégia de coping importante para lidar com o aumento das dificuldades e do stress.

Conclusão

Não foi detetada qualquer influência da prática de exercício físico em grupo contra a solo nos níveis de compaixão total, na média do curso ou na satisfação com o sucesso académico. No entanto, a alternância entre essas duas modalidades de exercício mostraram ter um impacto positivo na média. Futuros estudos são necessários para comprovar este efeito.

Palavras-chave: Compaixão, empatia, estudantes de medicina, exercício físico, individual, prática em grupo.

LIST OF ABBREVIATIONS

FMUC: *Faculdade de Medicina da Universidade de Coimbra*

INTRODUCTION

Compassion is described as essential in the relationship between a healthcare professional and a patient, being included in numerous Medical Ethics documents from various countries. (1) The benefits that stem from compassion englobe both medical professionals and patients, resulting in higher satisfaction with the services provided, improved information retention and an overall better working environment. (1–5) Furthermore, compassion is not stagnant and is able to decline or improve through training and experiences. (2,6) This, in itself, demonstrates the need to educate medical students in these regards.

The decline in compassion has been shown to affect medical students on several occasions (6–8). One such study demonstrated that this decline also occurs on “*Faculdade de Medicina da Universidade de Coimbra*” (FMUC) throughout the Medicine Course.(9) Therefore, diverse strategies to prevent this decline were suggested, including the practice of physical exercise, doing voluntary work or cultural activities.(9)

Concomitantly, people who practice physical exercise have lower stress levels, lower anxiety levels and higher self-life satisfaction when compared to people who do not engage in physical activity, regardless of whether it is solo or in group. (10–13) These qualities inevitably link to higher compassion levels and social skills. In addition to the previous, a 2 million people study in the United States, which took place during 2011 and 2015 suggests that group sports lead to lower mental health burden. (11)

These showings correlate with the social interaction hypothesis of the benefits of physical exercise on mental health. This hypothesis states that the social relationships and mutual support among team members of those who enroll in group exercise are what contribute to the positive effects observed in mental health. (12)

Following the previously stated, it can be theorized that group physical exercise can play a central role in the development of social skills and compassion which can lead to a better understanding of the patient and therefore, to a better relationship with them thus achieving the benefits described previously.

According to this, the following study was developed to access whether exercising in group rather than solo leads to higher compassion levels in Medicine Students of FMUC.

MATERIAL AND METHODS

Study design

A cross-sectional observation study, in a convenience sample, was conducted via on-line questionnaire in the students of medicine of FMUC. A sample was retrieved as representative of the aforementioned population.

This study design was approved by the Ethics Committee of “*Faculdade de Medicina da Universidade de Coimbra*” (Attachment 1).

In this study, physical activity was defined as daily movement rather than prescribed exercise intended for a particular outcome.

Participants

On condition that admission criteria were met, medical students of FMUC were allowed to voluntarily self-enroll. Due to this, no potential reverberations were detected dismissing potential monetary compensation.

Regarding confidentiality and anonymity, the study followed all legal norms, obtaining and protecting the data anonymously in a password protected database.

Data collection procedures

Data was collected using a *Google Forms* online questionnaire divulged in each year’s groups on *Facebook*, available between January 2023 and February 2023. Students were informed about the overall duration of the forms and the use of the data. Consent was collected as it was included in the questionnaire (Attachment 2).

To access the compassion levels of students and physical exercise habits, the questionnaire was split into 3 parts, following acceptance of consent: 1) General data about the participant, including sex, academic year, satisfaction with academic achievements and mean overall grade. 2) Physical exercise habits inquiring about frequency and solo or group practice. 3) The items taken from “*Escala de Jefferson de Empatia Médica- Versão Estudantes*” where for each different item, concordance levels could range from 1 (Strongly Disagree) to 7 (Strongly Agree). Therefore, the 7 items regarding compassion range from a total value of 7 to 49, in which, a lower value corresponds to a higher compassion level.

Outcome variable

The outcome variable in this study was the compassion level of students.

Independent variables

Independent variables used to characterize the population were sex (dichotomous nominal variable), academic year (dichotomous ordinal variable), satisfaction with academic achievements (ordinal variable) and mean overall grade (ordinal variable). Regarding physical exercise frequency (nominal variable) and solo or group practice (nominal variable) were used.

Compliance with ethical standards

All ethical standards and necessities were met.

Statistical analysis

For statistical analysis of the data IBM's software SPSS® (Statistical Package for the Social Sciences), version 27 was used, at a 5% significance level.

Descriptive statistics were used to characterize the sample. In addition, Kolmogorov-Smirnov test was applied to infer normal distribution on numeric data. Following the result, non-parametric statistics, specifically Kruskal-Wallis and Mann-Whitney U test were conducted between sex, frequency of physical exercise, solo or group practice, the concordance to each item of "*Escala de Jefferson de Empatia Médica- Versão Estudantes*" and the total sum of every item. Additional variables were established, one grouping individuals who performed solo exercise, another assembling those who reported participating in group physical exercise, and a third combining those who engaged in physical exercise regularly or occasionally.

If significant difference was found between two variables, descriptive statistics were once more conducted.

Quartile distribution was applied to the total sum of every item, with 11 corresponding to the 25th percentile, 14 to the 50th percentile and 17 to the 75th percentile. With these values, stratification in compassion level was attributed in which a value <11 equals a "High" compassion level, a value ≥ 11 and < 14 "Medium High", "Medium Low" if the value is ≥ 14 but < 17 and "Low" if the value is \geq than 17.

RESULTS

Sample characterization:

The data accomplished included 241 individuals (from “*Faculdade de Medicina da Universidade de Coimbra*” currently studying *Medicine*, in which, 168 (69.71%) were female and 72 (29.88%) were male, with 1 individual not identifying with either. The necessary sample size estimated was 202. The sample of 240 students is characterized in table 1 according to sex, course year, satisfaction with academic achievement, mean overall grade, frequency of physical exercise and whether physical exercise is conducted in solo or in group. Out of all individuals who always practice physical exercise solo, 76.74% are female and 88.7% of the students practice physical exercise.

Table 1 - Sample characterization according to sex, course year, satisfaction with academic achievements, mean overall grade, frequency of exercise and solo or group exercise conducted if applicable.

		Sex		Total
		Feminine	Masculine	n (%)
		n (%)	n (%)	
Course Year¹	1st- 3rd Year	76 (45.2)	29 (40.3)	105 (43.8)
	Above 4th Year	92 (54.8)	43 (59.7)	135 (56.3)
Satisfaction with Academic Achievements²	1	1 (0.6)	1 (1.4)	2 (0.8)
	2	6 (3.6)	3 (4.2)	9 (3.8)
	3	59 (35.1)	20 (27.8)	79 (32.9)
	4	85 (50.6)	35 (48.6)	120 (50.0)
	5	17 (10.1)	13 (18.1)	30 (12.5)
Mean Overall Grade³	10-13	15 (8.9)	6 (8.3)	21 (8.8)
	14-17	149 (88.7)	65 (90.3)	214 (89.2)
	18-20	4 (2.4)	1 (1.4)	5 (2.1)
Frequency of Physical Exercise⁴	Does not practice	19 (11.3)	8 (11.1)	27 (11.3)
	Yes, occasionally	63 (37.5)	22 (30.6)	85 (35.4)
	Yes, regularly	86 (51.2)	42 (58.8)	128 (53.3)
Solo or Group Practice⁵	Does not practice	19 (11.3)	8 (11.1)	27 (11.3)
	Always Solo	33 (19.6)	10 (13.9)	43 (17.9)
	Mostly Solo	69 (41.1)	31 (43.1)	100 (41.7)
	Mostly in Group	42 (25.0)	22 (30.6)	64 (26.7)
	Always in Group	5 (3.0)	1 (1.4)	6 (2.5)

¹ p= 0.479; ² p= 0.210; ³ p= 0.941; ⁴ p= 0.281; ⁵ p= 0.371 (Mann-Whitney U test)

Concordance to each item of the “*Escala de Jefferson de Empatia Médica- Versão Estudantes*” ranging from 1= “Strongly Disagree” to 7= “Strongly Agree” and total compassion level was evaluated according to sex (table 2). Cronbach’s Alpha for total scale was >0.70 which indicates good overall consistency and Cornell’s intraclass correlation coefficient indicated a moderate dependency between the scale.

There was no strong agreement towards item number 3 (“Patients’ illnesses can be cured only by targeted treatment; therefore, health care providers’ emotional ties with their patients do not have a significant influence in treatment outcomes.”) by any individual, being the only item without a concordance level of 6 or 7.

Table 2 - Sample characterization according to sex and concordance to each item of the “*Escala de Jefferson de Empatia Médica- Versão Estudantes*”.

		Sex		Total
		Feminine	Masculine	n (%)
		n (%)	n (%)	
1-“Attention to patients’ emotions is not important in patient interview.”¹	1	120 (71.4)	56 (77.8)	176 (73.3)
	2	28 (16.7)	9 (12.5)	37 (15.4)
	3	7 (4.2)	0 (0.0)	7 (2.9)
	4	1 (0.6)	0 (0.0)	1 (0.4)
	5	1 (0.6)	2 (2.8)	3 (1.3)
	6	1 (0.6)	0 (0.0)	1 (0.4)
	7	10 (6.0)	5 (6.9)	15 (6.3)
2-“Attentiveness to patients’ personal experiences does not influence treatment outcomes.”²	1	99 (58.9)	45 (62.5)	144 (60.0)
	2	47 (28.0)	17 (23.6)	64 (26.7)
	3	15 (8.9)	3 (4.2)	18 (7.5)
	4	3 (1.8)	1 (1.4)	4 (1.7)
	5	0 (0)	2 (2.8)	2 (0.8)
	6	2 (1.2)	3 (4.2)	5 (2.1)
	7	2 (1.2)	1 (1.4)	3 (1.3)
3-“Patients’ illnesses can be cured only by targeted treatment; therefore, health care providers’ emotional ties with their patients do not have a significant influence in treatment outcomes.”³	1	109 (64.9)	51 (70.8)	160 (66.7)
	2	25 (25.0)	9 (12.5)	51 (21.3)
	3	12 (7.1)	6 (8.3)	18 (7.5)
	4	3 (1.8)	3 (4.2)	6 (2.5)

	5	2 (1.2)	3 (4.2)	5 (2.1)
4-“Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints.”⁴	1	86 (51.2)	30 (41.7)	116 (48.3)
	2	57 (33.9)	20 (27.8)	77 (48.3)
	3	15 (8.9)	15 (20.8)	30 (12.5)
	4	6 (3.6)	3 (4.2)	9 (3.8)
	5	2 (1.2)	1 (1.4)	3 (1.3)
	6	0 (0.0)	1 (1.4)	1 (9.4)
	7	2 (1.2)	2 (2.8)	4 (1.7)
5- “I believe that emotion has no place in the treatment of medical illness.”⁵	1	97 (57.7)	32 (44.4)	129 (53.8)
	2	36 (21.4)	17 (23.6)	53 (22.1)
	3	21 (12.5)	14 (19.4)	35 (14.6)
	4	11 (6.5)	4 (5.6)	15 (6.3)
	5	1 (0.6)	2 (2.8)	3 (1.3)
	6	0 (0.0)	2 (2.8)	2 (0.8)
	7	2 (1.2)	1 (1.4)	3 (1.3)
6- “Health care providers should not allow themselves to be influenced by strong personal bonds between their patients and their family members.”⁶	1	10 (6.0)	4 (5.6)	14 (5.8)
	2	19 (11.3)	6 (8.3)	25 (10.4)
	3	37 (22.0)	9 (12.5)	46 (19.2)
	4	26 (15.5)	7 (9.7)	33 (13.8)
	5	37 (22.0)	16 (22.2)	53 (22.1)
	6	28 (16.7)	16 (22.2)	44 (18.3)
	7	11 (6.5)	14 (19.4)	25 (10.4)
7- “I do not enjoy reading non- medical literature or the arts.”⁷	1	129 (76.8)	51 (70.8)	180 (75.0)
	2	21 (12.5)	6 (8.3)	27 (11.3)
	3	8 (4.8)	4 (5.6)	12 (5.0)
	4	5 (3.0)	3 (4.2)	8 (3.3)
	5	3 (1.8)	3 (4.2)	6 (2.5)
	6	1 (0.6)	4 (5.6)	5 (2.1)
	7	1 (0.6)	1 (1.4)	2 (0.8)

¹p= 0.354; ²p= 0.772; ³p= 0.693; ⁴p= 0.039; ⁵p= 0.037; ⁶p= 0.004; ⁷p= 0.179 (Mann-Whitney U test).

Significant difference in distribution according to sex was found between item 4 (p=0.039), item 5 (p= 0.037), item 6 (p=0.04) and total sum of every item (p=0.04).

On average, the total sum of every item was lower in females than in males, with the highest registered value being 33. The minimal attainable sum for compassion on the scale is 7, and

this value was achieved by 6 females and 1 male, corresponding to the highest compassion level possible. Average total sum of every item is presented in table 3.

Table 3 – Mean, minimum and maximum values of the total sum of the scale organized by sex.

		Total Sum of Every Item		
		Mean	Minimum	Maximum
Sex ¹	Female	13.89	7	28
	Male	15.87	7	33
	All	14.56	7	33

¹p= 0.004 (Mann-Whitney U test)

The distribution of compassion levels according to sex (table 4) reveals:

-The most common compassion level is “Low” (30.0%), even though in females, 50.6% have a “High” or “Medium High” compassion level.

-Regarding “High” compassion level, females comprise 87.5% of the population.

Table 4 – Compassion level in quartile distribution according to sex.

		Compassion Level			
		High	Medium High	Medium Low	Low
		n (%)	n (%)	n (%)	n (%)
Sex	Female	42 (25.0)	43 (25.6)	37 (22.0)	46 (27.4)
	Male	6 (8.3)	22 (30.6)	18 (25.0)	26 (36.1)
Total		48 (20.0)	65 (27.1)	55 (22.9)	72 (30.0)

Upon analyzing the impact of physical exercise practice on the items of "Jefferson Scale of Physician Empathy-Student Version" and the total score, it was observed that the only difference was in relation to the first question.

Accordingly, among the students who engage in physical exercise, 75.2% responded with the highest level of compassion, whereas only 55.6% of those who do not exercise achieved this level.

When the frequency of physical exercise practice was considered, it was found that 82.0% of those who regularly engage in physical exercise achieved the highest possible level of compassion on this item.

Table 5 – Crosstabs analysis between frequency of physical exercise and the 1st item of “Escala de Jefferson de Empatia Médica- Versão Estudantes”.

		1- “Attention to patients' emotions is not important in patient interview.”						
		1	2	3	4	5	6	7
		n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Frequency of Physical Exercise ¹	Does not practice	15 (8.5)	8 (21.6)	1 (12.5)	0 (0.0)	1 (33.3)	0 (0.0)	2 (13.3)
	Yes, occasionally	56 (31.8)	15 (40.5)	7 (87.5)	1 (100.0)	1 (33.3)	0 (0.0)	6 (40.0)
	Yes, regularly	105 (59.7)	14 (37.8)	0 (0.0)	0 (0.0)	1 (33.3)	1 (100.0)	7 (46.7)
Practice of Physical Exercise ²	No	15 (8.5)	8 (21.6)	1 (12.5)	0 (0.0)	1 (33.3)	0 (0.0)	2 (13.3)
	Yes	161 (91.5)	29 (78.4)	7 (87.5)	1 (100.0)	2 (66.7)	1 (100.0)	13 (86.7)
Total	n (%)	176 (100.0)	37 (100.0)	8 (100.0)	1 (100.0)	3 (100.0)	1 (100.0)	15 (100.0)

¹p= 0.003 (Kruskal-Wallis test); ²p= 0.046 (Kruskal-Wallis test).

When comparing two groups, one comprising individuals who practice solo (“Always Solo” + “Mostly Solo”) and another comprising those who practice in group (“Mostly in group” + “Always in Group”), difference was found relative to course year (p=0.045) and item number 6 on the scale (p=0.035). Total sum (p=0.445) and mean overall grade (p=0.361) did not suffer any differences between the two. Relative to item number 6, 19 out of the 23 people (82.6%) who strongly agree with the sentence, practice exercise solo. This tendency, nonetheless, is inverted when regarding “Strongly Disagree”, where 53.8% of those, engage in group exercise. Furthermore, the most common answer in the group subsection was 6, whilst in the solo subsection was 7 (“Strongly Agree”).

However, when attending to how students practice physical exercise (“Always solo”, “Mostly Solo”, “Mostly in Group”, “Always in group”), difference was found between mean overall grade ($p=0.026$) and the 1st item of the scale ($p=0.024$). Notably, the sum of every item ($p=0.166$), satisfaction with academic achievements ($p=0.356$) and frequency of exercise ($p=0.101$) did not bear any difference. In detail, all those who engage in group exercise on every occasion, achieve the maximum level of compassion on this item, whilst only 60.5% of those whose preferred method is constantly solo, achieve that maximum. Moreover, most of the population achieves maximum compassion (161 out of 214). In fact, 46.2% of those who “Strongly Agree” with this item, engage in solo activity, contrary to 50.3% of those who “Strongly Disagree” with it who engage “Mostly in Group” exercise.

Considering table 6, 25.8% of students from the 1st to the 3rd year practice physical exercise in group, whereas 38.8% of those above the 4th year opt for this method. Furthermore, no individual who always practice solo or always practice in group has a mean overall grade over 18. In addition, 47% of those whose mean is 10-13, practice exercise always in solo.

It is also notable that 77.1% of students alternate between practicing solo or in group. Furthermore, individuals who engage in this alternating exercise behavior exhibit a statistically significant higher mean overall grade ($p = 0.007$) compared to those who do not.

Table 6 – Crosstabs analysis between solo practice, mean overall grade and course year.

		Solo Practice		Group Practice		Total
		Always Solo (total= 43)	Mostly Solo (total= 100)	Mostly in Group (total= 65)	Always in Group (total= 6)	n (%)
		n (%)	n (%)	n (%)	n (%)	
Mean Overall Grade	10-13	8 (18.6)	5 (5.0)	4 (6.2)	0 (0.0)	17 (7.9)
	14-17	35 (81.4)	92 (92.0)	59 (90.8)	6 (100)	192 (89.7)
	18-20	0 (0.0)	3 (3.0)	2 (3.1)	0 (0.0)	5 (2.3)
Course Year	1st to 3rd	69 (48.3)		24 (33.8)		93 (43.5)
	Above 4th	74 (51.7)		47 (66.2)		121 (56.5)

DISCUSSION

Following a previously instated investigation line, this study aimed to analyze, for the first time, a potential influence of solo or group physical exercise in compassion levels. Similarly to some studies, no difference between sex was observed regarding the practice of physical exercise. (14,15) On the other hand, a study conducted in Portugal in 2005 reported a difference in such association, stating that males engaged more frequently than females in physical activity. (10) Furthermore, the frequency in which students engage in physical activity exceeded what was previously observed and expected. (6,10,16) However, this increase may be subject to participation bias or interviewer bias, as the added “occasional” practice was not objectively defined.

The different sample distribution based on sex, was already expected, based on previous studies regarding medicine students in FMUC and other universities (6,17).

In accordance with earlier predictions, the level of compassion was higher in the female population as compared to the male one (6,18,19). However, males in the 5th or 6th year studying medicine in FMUC achieved higher compassion levels than females in a study conducted in 2022 (20). This phenomenon, albeit unusual, may be caused by several reasons. One of which, may be the difference in sample sizes or characteristics of the participants, despite there being a potential overlap in some cases. Additionally, a change in curriculum due to the Covid-19 lockdown, which corresponded with the beginning of the 4th and 5th year of that population may also be responsible for the inverted tendency.

One concerning discovery from the study, is that the most prevalent level of compassion is “Low”. As a result, it is imperative to identify a solution to reverse this trend, possibly by increasing interaction with patients outside clinical environment, or by an exposure to best practice tutor models. (21)

On another topic, inconsistencies have been reported regarding the effect of course year on the level of compassion, with several studies indicating an augmentation, a reduction, or a lack of alteration, as noticed in the current investigation. (6–8,19) Therefore, further studies are required to clarify this potential association, as well as finding the underlying reasons for it.

Regarding participating or not in physical exercise and if so, individually versus in a group setting, no influence on compassion level was found, such as expected.(6) Interestingly, despite that, this study found an increased tendency for group practice in more advanced years. It is possible to theorize that, as the latter phases of the course become more arduous

and the interpersonal distance between students grows, there may be a quest for social interaction that leads to engaging in group physical exercise as a coping mechanism. In that manner, accessing other potential coping mechanisms and their effectiveness may be in order.

A noteworthy observation was that alternating between solo and group exercise produced better academic results. This observation may be attributed to the individual's ability to effectively manage their lifestyle in a more balanced sense. However, the psychological factors behind this are yet to be studied.

This study has some limitations. Firstly, the intervals utilized to determine the mean overall grade might be susceptible to measurement bias, given that 90% of the sample falls within the "14-17" range. Thus, additional intervals could have been established to enhance differentiation of the results, thereby enabling the detection of potential associations between compassion and mean overall grade, as has been reported in other studies.(20) In addition to this, use of a unique self-reporting compassion scale is suboptimal. Moreover, employing the "unique answer" option in Google *Forms* to administer the questionnaire restricts each email address to providing a single answer. Nonetheless, individuals with multiple e-mails, may submit several identical or distinct responses. Additionally, by resorting to *Facebook* medicine groups to spread the questionnaire, former students still present in those may answer. Penultimately, cross-sectional studies such as this do not allow for the attribution of causality. Lastly, it should be noted that there may be other factors, for example past physical exercise habits, which were not contained in the questionnaire but could have an impact on the level of compassion.

CONCLUSION

No significant correlation was observed between individual or group physical exercise practice and levels of compassion, apart from a single sub-item of the scale. Nevertheless, it is worth noting that females exhibited higher levels of compassion. Hence, additional measures, should be considered to subvert this tendency.

Furthermore, the frequency of group exercise tends to increase as the course progresses. Futures studies may be valuable in clarifying the underlying reasons for this phenomenon and determining its potential utility as a coping mechanism. Finally, alternating between solo and group practice may have a positive impact on the mean overall grade. However, this effect needs to be confirmed and studied in depth.

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ATTACHMENTS

1. Ethics committee approval



Comissão Ética - FMUC <comissaoetica@fmed.uc.pt>
para mim, msantiago, krusferreira ▾

quarta, 25/01, 10:35 ★ ↶ ⋮

Exmo. Senhor
Dr. Francisco Donário Miranda,

Cumpre-nos informar que o projeto de investigação apresentado por V. Exa. com o título "**Compaixão em alunos de medicina e prática de atividades extracurriculares de exercício físico: diferenças entre prática a solo e em grupo? | Compassion in medicine students and the practice of extracurricular activities of physical exercise: differences between solo and group practice?**", foi analisado na reunião da Comissão de Ética da FMUC de 10 de janeiro, tendo merecido o parecer que a seguir se transcreve:

"A Comissão considera que se encontram respeitados os requisitos éticos adequados à realização do estudo, pelo que emite parecer favorável à sua realização".

Cordiais cumprimentos.

Helena Craveiro
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2. Questionnaire

COMPAIXÃO EM ALUNOS DE MEDICINA E PRÁTICA DE ATIVIDADES EXTRACURRICULARES DE EXERCÍCIO FÍSICO: DIFERENÇAS ENTRE PRÁTICA A SOLO E EM GRUPO?

Caro aluno/ aluna:

A compaixão é descrita como fundamental na relação entre um profissional de saúde e um doente.

A prática de atividades extracurriculares, especificamente, exercício físico, está associada a benefícios mentais e níveis menores de stress entre os alunos de medicina. Estes benefícios relacionam-se com a modalidade e a forma como se pratica o exercício físico, em grupo ou individualmente.

É convidado a participar num estudo sobre a compaixão e sobre a modalidade e forma como se pratica o exercício físico bem como o nível de compaixão recorrendo ao uso da Escala de Jefferson de Empatia Médica – Versão estudantes, de forma a encontrar alguma potencial diferença observada. Se aceitar, solicita-se que responda a um conjunto de perguntas. O tempo total de preenchimento é de 3 a 7 minutos.

Será garantida completa confidencialidade quanto à informação. Não há respostas certas ou erradas, o que interessa é que responda de forma honesta sobre os itens perguntados. Não há qualquer remuneração em troca.

Se tiver questões sobre este estudo, desejar retirar o consentimento dado ou tiver qualquer outra questão deve contactar o investigador responsável: Francisco Donário Miranda (miranda.francisco99@gmail.com)

***Obrigatório**

1. Aceito participar no estudo? *

Marcar apenas uma oval.

- Aceito Participar no Estudo
 Não Aceito Participar no Estudo

Dados
Gerais

Responda de acordo com a sua pessoa e uma opção por pergunta.

2. Sexo *

Marcar apenas uma oval.

- Feminino
 Masculino
 Não quero responder

3. Ano de Curso *

Marcar apenas uma oval.

- 1º ao 3º Ano
 Acima do 4º Ano

4. Satisfação com o percurso académico *

Marcar apenas uma oval.

Muito Insatisfeito

1

2

3

4

5

Muito Satisfeito

5. Média de Curso *

Marcar apenas uma oval.

10-13

14-17

18-20

Perguntas relativas ao Exercício Físico

Qualquer deslocação a pé (caminhada), desde que seja 30 minutos conta como exercício físico.

No caso da prática de exercício físico a solo ou em grupo, responda de acordo com o mais frequente para si.

Responda uma opção por pergunta.

6. Costuma praticar Exercício Físico? (Qualquer caminhada desde que 30 minutos diários conta como exercício físico) *

Marcar apenas uma oval.

Sim, regularmente

Sim, ocasionalmente

Não

7. Se sim, como costuma praticar Exercício Físico? *

Marcar apenas uma oval.

Sempre a Solo

Maioritariamente a Solo

Sempre em Grupo

Maioritariamente em Grupo

Não aplicável

Perguntas relativas ao Nível de Compaixão

Por favor, indique o seu nível de concordância com as seguintes afirmações, de 1 a 7, sendo 1= discordo fortemente e 7= Concordo Fortemente

8. *

Marcar apenas uma oval por linha.

	1- Discordo Fortemente	2	3	4	5	6	7- Concordo Fortemente
A compreensão que os médicos têm dos sentimentos dos pacientes e das suas famílias não tem influência no tratamento médico ou cirúrgico.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Os pacientes sentem-se melhor quando os médicos compreendem os seus sentimentos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
É difícil para um médico ver as coisas na perspectiva dos pacientes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perceber a linguagem não verbal é tão importante como a linguagem verbal nas relações entre médico e paciente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
O sentido de humor de um médico	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

contribui para
um resultado
clínico melhor

Porque as
pessoas são
diferentes, é
difícil ver as
coisas da
perspectiva
dos pacientes

Prestar
atenção às
emoções dos
pacientes não
é importante
na recolha de
uma história
clínica

A atenção às
experiências
pessoais dos
pacientes não
influencia o
resultado dos
tratamentos

Os médicos
deviam tentar
"colocar-se no
lugar" dos
seus
pacientes
quando lhes
estão a
prestar
cuidados

Os pacientes
valorizam a
compreensão
que o médico
tem dos seus
sentimentos,
o que é
terapêutico
em si mesmo

As doenças
dos pacientes
só podem ser

curadas com tratamentos médicos ou cirúrgicos; assim, os laços emocionais dos médicos com os seus pacientes não têm qualquer influência significativa no tratamento médico e cirúrgico

Fazer perguntas aos pacientes sobre o que se passa na sua vida privada não ajuda na compreensão das suas queixas físicas

Os médicos deviam tentar compreender o que se passa na cabeça dos seus pacientes, prestando mais atenção às listas não verbais e à sua linguagem corporal.

Eu acredito que a emoção não deve estar presente no tratamento

de doenças
orgânicas

A empatia é
uma
competência
terapêutica
sem a qual o
sucesso do
médico é
limitado

A
compreensão
dos médicos
acerca do
estado
emocional
dos seus
pacientes e
das famílias
dos seus
pacientes é
uma
componente
importante da
relação entre
o médico e o
doente

Os médicos
deviam tentar
pensar como
os seus
pacientes
para
prestarem
melhores
cuidados

Os médicos
não se deviam
deixar
influenciar por
relações
pessoais
fortes com os
seus
pacientes e as
suas famílias

Não aprecio
literatura não

**médica ou
outras formas
de arte**

**Eu acredito
que a empatia
é um factor
terapêutico
importante no
tratamento
médico**

Muito obrigado pela
sua participação
neste estudo.

Para qualquer dúvida ou retificação,
contactar Francisco Donário Miranda
(miranda.francisco99@gmail.com)