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Healthcare leadership development through associativism participation

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À C'a Tuna aos Saltos

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Resumo alargado

Contexto e objetivos

Actualmente é requerida aos médicos uma postura de líder e de saber como trabalhar em equipa. Contudo, estas competências não são formalmente abordadas nem treinadas na generalidade das escolas médicas, pelo que podemos colocar as seguintes questões: Como é que os médicos se podem tornar líderes? Haverá relação entre as competências de liderança e experiência prévia em associativismo?

Primeiramente devemos analisar os conceitos por trás de liderança e associativismo para assim melhor entendermos estas questões. Existem diversas maneiras de descrever o que é ser líder. Podemos utilizar este termo para descrever alguém que se destaca, alguém poderoso ou ainda, alguém com grandes conquistas. Porém, nenhuma destas definições está totalmente correcta. Um líder é alguém que consegue influenciar os outros a segui-lo e tem ainda a capacidade de estimular outros para que alcancem os objetivos propostos. Assim sendo, ser-se líder engloba um conjunto de competências que apenas podem ser desenvolvidas ao praticar liderança.

Uma forma de se poder desenvolver estas competências passa pela participação em grupos associativos como associações de estudantes, coros ou ainda tunas académicas, onde os estudantes aprendem a trabalhar em equipa, a melhor organizar o seu tempo e ainda desenvolvem competências de comunicação enquanto líderes.

Posto isto, o objectivo deste estudo é analisar se existe relação entre a participação em associativismo e o desenvolvimento de competências em liderança.

Materiais e métodos

Este é um estudo de coorte retrospectivo que foi constituído por cinco etapas. Primeiramente, foi realizada uma pesquisa bibliográfica para entender o quanto se sabia sobre a relação entre liderança e associativismo. Em seguida, foram criadas duas listas de contactos: uma lista continha associações estudantis portuguesas e a outra lista continha médicos que não participavam no associativismo. Na terceira etapa elaborou-se um questionário, tendo em consideração a relevância com o assunto abordado. Em seguida, o questionário foi distribuído pelas listas de contatos referidas, através de e-mail e redes sociais, tornando a amostra voluntária e de conveniência, e com um pedido de divulgação a outros médicos, o que permitiu um maior número de repostas.

Por fim, os dados adquiridos foram analisados, utilizando-se o GoogleSheets® e o IBM SPSS® statistics for Windows, versão 23.0.. Estatísticas descritivas e inferenciais foram realizadas, de acordo com a pertinência dos dados e a possibilidade de responder às questões levantadas por esta tese.

Resultados

Para este estudo, foram analisadas 199 respostas ao questionário, sendo 152 dos respondentes do sexo feminino (76,4) e a média de idades de 27,1 anos (desvio padrão de 3,39). A maioria dos médicos participantes neste estudo formou-se na FCS-UBI, FMUP ou FMUC. Metade (50,8%) eram internos de especialidade; 37,2% eram internos de ano comum e 12,1% eram especialistas. Em relação à distribuição pelas diferentes especialidades médicas, esta sobrepôs-se à realidade nacional.

Dependendo da resposta dada na primeira questão “Participou ativamente no associativismo?”, a população do estudo foi dividida em dois grupos principais: G1 - médicos que participaram em grupos de estudantes (62,8% da amostra) e G2 - médicos que não participaram. 44,8% de G1 referiu não frequentar o grupo associativo há mais de 2 anos. De modo a completar a segunda parte do questionário, foi feita a pergunta “Durante quanto tempo esteve activo nos grupos associativos?”, cuja moda foi a resposta “5 - 6 anos” com 30,4 % das respostas G1.

Em seguida, foi questionado a G1 se desempenharam algum cargo de dirigente (G1b), ou não (G1nb), nos respectivos grupos e 53,6% responderam “sim”. Relativamente aos cargos desempenhados por G1b, o mais frequente foi “Vogal” com 29 respostas, seguido de “Presidente” (n = 21), e ambos com 18 respostas “Tesoureiro” e “Outro”.

Os médicos de G1b referiram desempenhar as funções directivas, principalmente entre “1 - 2 anos” (32 respostas, representando 47,8% de G1b) e dispndiam entre 5 a 8 horas por semana nas mesmas.

Os resultados mostraram que 97% de G1b sentia que sua participação em associativismo melhorou a sua experiência académica e as três competências que sentiram melhor desenvolvidas devido a esta participação foram: “Organização do tempo” (n = 46), “Comunicação em público” (n = 27) e “Comprometimento”(n = 26).

G1 apresentou correlação com a capacidade de falar em público (p = 0,003) e tendência de correlação com outras competências de liderança, como “sentir-se calmo perante uma adversidade” (p = 0,075), “confiança ao liderar uma equipa” (p = 0,077) e “ganhar a

confiança da equipa” ($p = 0,057$). G2 mostrou também algumas correlações em relação a “sentir-se ansioso perante dificuldades nas tarefas” tanto como estudantes quanto como médicos ($p=0,030$ e $p=0,016$, respectivamente).

Dentro do grupo G1, o subgrupo de alunos que foram membros da direcção mostrou uma correlação positiva com “voluntariar para ser o líder” ($p=0,013$), “persuadir os meus colegas” ($p=0,041$) e “sentir-se confiante ao liderar uma equipa” ($p=0,018$).

Discussão/conclusões

Nesta amostra, os médicos que assumiram um papel em grupos de estudantes, especialmente os que fizeram parte do corpo dirigente, mostraram possuir maior confiança e habilidades de liderança.

Quase todos os médicos de G1b reconheceram que a sua participação no associativismo melhorou o seu percurso académico

Os resultados deste estudo sugerem que ocupar um cargo de dirigente associativo desempenha um papel importante, não apenas no desenvolvimento de competências de trabalho em equipa, como também cria novas oportunidades para os estudantes desempenharem papéis de liderança durante a escola médica e, eventualmente, também ao longo da sua vida pessoal e profissional.

Uma vez que algumas escolas médicas tiveram uma representação pequena e a amostra de médicos que não participaram no associativismo foi obtida de forma não aleatória - amostra de conveniência - não é possível generalizar as conclusões. Contudo, conclusões referentes à amostra do estudo puderam ser elaboradas.

Palavras-chave

Associativismo; liderança em Saúde; líder; Médico especialista; Médico interno; trabalho em equipa.

Abstract

Background & Aims

Increasingly, in modern healthcare doctors are required to be leaders and to know how to work in a team. Unfortunately, in most medical schools there is still no formal training of these skills, which leads to some obvious, yet unsolved medical education questions: how can doctors learn how to be leaders? How can they get to be better team workers? Is there any relationship between leadership capacity and previous experiences in activities such as associativism during medical school years?

First, we should analyse what the key words leadership and associativism mean, in order to better understand these questions. There are many ways to describe a leader. It can be used to describe someone who stands out, someone powerful or even someone with great achievements. In fact, none of these definitions is exclusively correct. A leader is someone who can influence others to follow him/her, and has the ability to empower others to achieve a proposed goal. Therefore, leadership is a set of skills that can only be developed with the practice of being a leader. One way to get this practice is participating in associative groups as students associations, choirs, or academic *tunas*, where students have to learn how to work as a team, organize their time, and develop communication skills as a leader.

The goal of this study is to explore the possible relationship between participating in associativism during medical school years and the development of leadership skills, perceived in early years of doctoring

Materials & Methods

This is a retrospective cohort study that was conducted in five steps. Firstly, a bibliographic research was carried out to understand how much was known about the study subject. Then, two lists of contacts were created: one was a list of Portuguese students' bodies' and the other was a list of physicians who did not participate in associativism. Thirdly, a questionnaire was elaborated, taken into account relevance with the subject addressed. Next, the questionnaire was distributed to the lists of contacts already drawn up through e-mail and social media pages, making the sample voluntary and of convenience, and with a request of disclosure to other physicians, which allowed a greater number of respondents.

At last, the data collected was analysed using GoogleSheets® and IBM SPSS® statistics for Windows, version 23.0.. Descriptive and inferential statistics were performed, according to the pertinence of the data and the possibility of answering the questions raised by this thesis.

Results

For this study, 199 questionnaire responses were analysed, where 152 were female (76,4) and mean age was 27,1 years old (standard deviation of 3,39). Most of the physicians participating in this study attended FCS-UBI, FMUP or FMUC. Half (50,8%) were senior residents; 37,2% were first year residents and 12,1% were specialists. Regarding the distribution into types of medical specialties, it overlaps the national reality.

Depending on the answer given for the first question “Have you ever participated actively in associativism?” the study population was divided in two main cohorts: G1- physicians who participated in student groups (62,8% of the sample) and G2 - those who did not participate. 44,8% of G1 said they had stopped attending the associative group more than 2 years ago. In order to complete the second part of the questionnaire it was asked the question “For how long have you been active in your(s) association(s)?”, which mode was the answer “5 - 6 years” with 30,4% of the G1 responses.

Then it was asked to G1 if they were board members (G1b), or not (G1nb), on their extracurricular activities and 53,6% responded “yes”. Concerning G1b board positions, the most performed was “Assistant board member” with 29 responses, followed by “President” (n=21), and with 18 responses both “Treasurer” and “Other”.

Physicians from G1b performed their respective board duties mostly between “1 - 2 years” (32 responses, representing 47,8% of G1b) and spent between 5 to 8 hours per week on their board duties.

Results shows that 97% of G1b felt that their participation improved their academic experience and the three competencies they felt better developed due to associative participation were: “Time management” (n=46), “Public communication” (n=27) and “Commitment” (n=26).

G1 showed a positive correlation with ability to “speak in public” (p=0,003), and trend towards correlation with other leadership skills, such as “feeling calm when facing an adversity” (p=0,075), “confidence when leading a team” (p=0,077) and “gain team

confidence” ($p=0,057$). G2 also showed some correlations regarding “feeling anxious about difficult tasks” both as students and as physicians ($p=0,030$ and $p=0,016$, respectively).

Within G1 group, the subgroup of students who had been board members showed a positive correlation with “volunteering to be the leader” ($p=0,013$), “persuade my colleagues” ($p=0,041$), and “feeling confident to lead a team” ($p=0,018$).

Discussion/conclusion

In this sample, physicians who took a role in student groups, especially those involved in leading those groups, showed improved confidence and leadership skills.

Almost every physician from G1b recognised that their participation in associativism improved their academic journey,

Our data suggests that to be a student organization board member plays an important role in developing teamwork skills and also creates new opportunities for students to be leaders while in medical school and eventually beyond in their personal and professional lives.

Since some medical schools had a small representation and the sample of physicians who did not participate in the associativism was obtained non-randomly - being a convenience sample - it is not possible to generalize the conclusions. However, conclusions regarding the study sample could be elaborated.

Keywords

associativism; Healthcare leadership; leader; specializing doctor; intern; teamwork

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Acronyms list

DCBM-UAlg	Medicine and Biomedical sciences department of University of Algarve
ECS-UM	Medicine School of University of Minho
FCS-UBI	Faculty of Health Sciences, University of Beira Interior
FMUC	Faculty of Medicine, University of Coimbra
FMUL	Faculty of Medicine, University of Lisbon
FMUP	Faculty of Medicine, University of Porto
ICBAS	Abel Salazar Institute of Biomedical Sciences, University of Porto
NMS FCM	NOVA Medical School, Faculty of Medical Sciences
G1	Physicians who participated in student bodies
G2	Physicians who did not participate in student bodies
G1b	Physicians from G1 who were board members
G1nb	Physicians from G1 who were not board members

1. Introduction

“Leadership and management skills are required to ensure provision of high-quality patient care” (1). The challenges are increasing, as the notion of healthcare is changing, requiring now a more holistic care (2). With the recognition of health as a multidimensional concept(3) it is also necessary to invest in multiprofessional teams – group of professionals from different areas (physicians, nurses, social workers, pharmacists, and many others) that integrate their work practices (2).

Frich JC, et al. (2014)(4) noticed that “leadership development can promote several key functions in organizations, such as performance improvement, succession planning, and organizational change, and the literature on leadership provides evidence that its development helps organizations achieve their goals”. In face of this, it was recognized the importance of improving individual leadership skills, as well as give opportunities for professionals to learn how to work together.

With this in mind it would be expected that medical schools would promote interprofessional activities and leadership development through structured teaching activities. However, as we explained below, it is not always possible to provide these experiences.

The academic years are expected to be years of discovering, involvement in new activities and development of technical and non-technical skills. Participating in extracurricular activities is part of this journey and often shows big impact on students’ life. These extracurricular activities (or associative groups/ associativism) can be seen as voluntary and non-academic groups, composed of students, and that fall outside the formal curriculum of university education. Usually these activities are non-paying, social and philanthropic (Fares J, et al 2015)(5). Associativism can acquire diverse forms and cover all areas of students’ interests, since they can relate to sports, music, theatre, community service, religious, and many others. Therefore, we can consider associativism as any group of students who shares one or more common interests and work together to accomplish a proposed goal. There are some studies carried out on this subject and, in general, all have the same conclusions, that participating in extracurricular activities is associated with a superior academic performance(6), with better burnout outcomes and a higher social accomplishment(5). Notwithstanding, research also emphasizes the need to maintain a well-judged balance between associativism participation and curricular effort as well as the notion that some activities are energy and time consuming beyond the healthy outcomes(5).

Through this reflection on the subject, the lack of information and research work on extracurricular activities and leadership is notable. Previous studies have also faced these struggles, and recognize the need to further investigation (6)(7). The present study intends to add more knowledge to the discussion of active participation in extracurricular activities and medical leadership, two areas of major importance in medical students' lives and healthcare.

The aims of this study are:

- I. Explore the correlation between participating in student organizations and self-perception of leadership skills development in physicians.
- II. Explore the correlation between being board members in students organizations and self-perception of leadership skills development in physicians.

To meet these aims, three main research questions were addressed:

1. Is there a relationship between participating in extracurricular activities as a student, and a self-perception of developed leadership skills as physicians?
2. Are student organizations a potential source for developing teamwork abilities?
3. Assuming a relation between participating in student organizations and self-perception of leadership skills, is there a higher correlation between those who were board members?

2. Theoretical background

2.1. Development of leadership skills

A team is composed by several professionals, who play different roles. One of these roles is the leader, someone who provides direction, instructions and has the ability to influence others for the purpose of achieving a common goal. The team leader has a key role in identifying and exploring the weaknesses, strengths and motivations of his team. Some issues regarding leader' skills were pointed out by the Global Human Capital Trends 2014 survey(8), in which they highlighted the fact that "leadership remains the No. 1 talent issue facing organizations around the world" with 86 percent of respondents in that survey rating it as "urgent" or "important." This leadership issue is throughout to health care sector, who faces a wide variety of obstacles, from lack of personal leadership development to lack of recognition of its importance by health care institutions.

Being a leader requires the development of some skills that can be best learned by practicing leadership. Thus, the leaders while developing these abilities, also develop their own leadership style - the way they interact with others(9). Goleman et al. (2002)(10) described six different leadership styles that are dynamic and can be frequently interchanged with each other: visionary (encourage their team members to use their own initiative to meet a target - "come with me"), coaching (focus on prepare the team members for future success - "Try this"), affiliative (promotes harmony within the team and emphasizes emotional connections - "people come first"), democratic (seeks for team collaboration and creates space for team members opinions - "what do you think?"), pacesetter (focus on performance and achieving goals - "do as I do") and commanding (authoritarian approach that often depends on orders and discipline - "do what I tell you"). The interchange between these six leadership types and the ability to adapt them to different circumstances is what make a successful leader (9), however many leaders often opt for one type, which may impair their effectiveness.

Saxena et al. (2017)(9) showed that medical education leaders at different hierarchical levels (first-level, middle-level and senior-level) tend to prefer different leadership styles, and that the senior-level leaders use a broader range of styles, which reinforces the idea that leadership is dynamic and that the best way to be a leader is to lead.

While the ability to adapt, at least, four leadership styles makes a highly effective leader (Goleman D, et al. 2004)(10), the formal leadership approach in medical schools seems to improve the development of leader skills by training different leadership styles.

2.2. Teaching leadership and teamwork in medical schools

First, we must look at the meaning of a team, highlighting the definition given by the World Health Organization(11): a team is a distinguishable set of two or more people who interact dynamically, interdependently, and adaptively towards a common and valued goal/objective/mission, who have been each assigned specific roles or functions to perform, and who have a limited lifespan of membership. Knowing the meaning of a team is the starting point for successful teamwork. In healthcare, work with other professionals is the clinical practices' daily bases, where teams can include a single discipline or involve the input from multiple practitioner types, including doctors, nurses, pharmacists, physiotherapists, social workers, psychologists and potentially administrative staff (12). It is only with this diversity of professionals that healthcare can be effective and increase patients' clinical outcomes (VanderWielen LM, et al.2014 (3)).

To achieve this goal, it is important to provide opportunities for healthcare students to engage with other students and expand individual concepts of healthcare and team-based care. Interprofessional education is one possible way to reach high quality multiprofessional teams, as future health professionals develop role clarity while still receiving their education. Unfortunately, it is not always easy to put this into practice, since there are some barriers such as scheduling, a rigid curriculum and lack of perceived value of such education, that often result in incongruent attitudes and perceptions of administration, faculty and students (VanderWielen LM, et al.2014 (3); Matthews JH, et al.2017 (13)). Therefore, we recognize the need for faculties to set themselves as examples and encourage collaborative activities among students. This can be achieved by providing students the time they need to engage in these activities (6) and by integrating extracurricular activities into the curriculum.

Currently, leadership programs are far from having their applicability in medical schools well established and even to see their importance recognized. In fact, this situation can be observed in Portugal, where only one medical school dedicates teaching time to this subject, by having a leadership and health management class. Medical education focus on different subjects and areas depending on the school year. Typically, the first two years are dedicated to cognitive knowledge of basic sciences, through written examinations(14), whereas clinical skills, pathology, diagnosis and treatment are approached from the third year onwards. As Phelan et al. (1993) (15) demonstrated, some competencies are poorly addressed, if at all, namely responsibility, communication skills, self-awareness, and commitment to continuous professional development. Notwithstanding, Balyer et al. (2012) (16) explored the Structured Extracurricular Activities (SEAs) - voluntary activities "designed and carried out inside or outside school within a plan after classes as strategic tools that help diminish negative behaviours" that some countries integrate in their formal curricula, and concluded that SEAs "increased both social and academic achievements in students".

Unfortunately, there is scarce information and studies that encompass clinical leadership, especially studies related to medical leadership programs in medical schools. These programs can either explore self-leadership development (focusing more on individual competencies) or leadership development (focusing not only on the leader but also on the collective abilities) (Day DV. 2000 (17)). What we can see is a trend to leadership development programs both in medical schools and in hospitals, focusing on physicians alone. This could mean lost opportunities to train multiprofessional team collaboration, which is very important on team based leadership (Gronn P. 2002 (18)).

In health care there are scarce definitions of a team. As Stock R., et al (2013) mentioned, it takes more than placing a group of different health professionals together to make them a team, it is needed for them to perform interdependent tasks and share a common goal – improve health care (19).

As seen above, knowing how to work as a team is fundamental for a good performance in the health services. Therefore, interprofessionality is an area that must be approached in the academic years, and can be achieved when students from two or more professions are given opportunities to learn from and with each other, and also work towards collaboration and improvement of health outcomes (World Health Organization, 2010) (11).

2.3. Extracurricular activities and associativism

Being part of an extracurricular activity is not only linked to university years, it can start much earlier, even before primary school. These activities cover a range of areas, from sports, plastic arts, performing arts, music, etc. and can either be integrated in the school agenda or not. There are several studies that evaluate the impact of extracurricular activities on school performance in young people attending primary and secondary education, but it seems there are not many studies that do this on higher education.

A very important aspect of students' lives, both because of its increased incidence and because of the negative effect on their lives, is the stress associated with the medicine course. This is commonly designated as a Burnout event – a prolonged response to chronic emotional and interpersonal stressors on the job, characterized by a triad of emotional exhaustion, cynicism, and a feeling of personal inefficacy (Maslach C, et al. 2001 (7)) – that has already been associated with medical students, at high levels between 45% to 50% (Dyrbye LN, et al. 2008 (20)). This should be a concern, since burnout itself is an independent risk factor for students' suicidal ideation and can lead to dropping out of medical school (20).

However, some other studies have already shown the positive impact that extracurricular activities can have on students' lives, and may even reduce burnout levels, since they can improve coping strategies. One of these studies was conducted by Astin A, et al (1999) (21) and showed that leadership ability, critical thinking, social self-confidence and conflict resolution skills were higher in students who volunteer. Fredricks JA, et al. (2005) (22) also had similar results, which showed that participation in extracurricular activities correlated with lower depression rates among the students, and some possible explanations included the sense of belonging and the opportunity to develop social relationships.

Some other studies realized that this participation in associativism can improve student's academic outcomes such as achievement, school engagement and school satisfaction, as well as social skills, including emotional adjustment and higher self-esteem (Almasry, M. et al. 2017; Lumley, S. et al. 2015; Urlings-Strop, LC. et al. 2016; Balyer, A. et al. 2012) Regardless of whether it is a sport, musical or academic-related activity, there are some features that extracurricular activities share, that make them achieve these results. Some of those features can be pointed out, namely regular participation schedules, emphasis on skill development, developing attention and clear feedback (Eccles and Gootman, 2002 (23)). Since those who enroll in these activities have a specific interest in the subject, their participation may contribute to demonstrate effort, persistence, concentration, as well as explore their identities and still facilitates membership in a prosocial peer group (24).

2.4. Factors that may influence leadership and team work

The male-female ratio during medical school in recent years is 1 to 3, respectively (25). Also, the number of female physicians is increasing and became higher than male physicians since 2010 (26).

In Portugal there are 48 medical specialties, and the one counting a higher number of physicians is General Practice, with 6530 physicians in 2016 (27). According to the same source, about 19500 Portuguese physicians are not specialists, which can be justified by including young physicians who have just graduated from medical schools or are residents.

The little that is known about students' perception on associativism and its relation with academic performance is pointed out by Almasry et al (2017) (6) and is also subject of research in this study.

“Communication plays a central role for leadership” (Schneider F.M., et al,2015) (28) and that explains the empirical findings of its application in daily work life. Also, knowing communication strategies is important to be a leader and whom doesn't recognize or apply it might not be a leader at all (28). Making sure that my team pays attention and understands my suggestions or instructions is a way to secure if communication skills are being well applied. For that, this questionnaire will embrace some questions towards team communication.

As said above, recognizing the relevance of communication to establish good relations between team members is key, but further work must be done. Communication encompasses not only a verbal dimension, but also a non-verbal one (29). As studies have shown, people who engage more often in non-verbal behaviours are seen more positively than those communicators who don't (29). Here we can be talking about behaviours that communicators must have while talking to people, that makes them more approachable, namely making eye contact, use hands and arms to gesture and have a vocal variety in opposition to use a monotone.

Luthans (2002) (30) described a psychological capability's theory, which encompassed four essential characteristics in leaders: hope, optimism, resilience and confidence. In this model, resilience is described as “the capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility”, and suggests that it can be developed through personal growth (31). Therefore, it matters how leaders deal with obstacles/adversities and the effort they make to overcome them.

3. Methods

3.1. Type of study and methods

For this research work, the type of study that best applies is the retrospective cohort study, since it identifies the sample based on their exposure status – participating/not participating in student organizations – and follow it through time to identify which participants reported the development of the outcomes of interest: leadership skills development (Thiese MS, 2013) (13) .

3.2. Study design

This research was conducted in five steps as follows. Graph 1 attempts to depict a summary of the study design and some of the concerns and aspects taken into consideration.

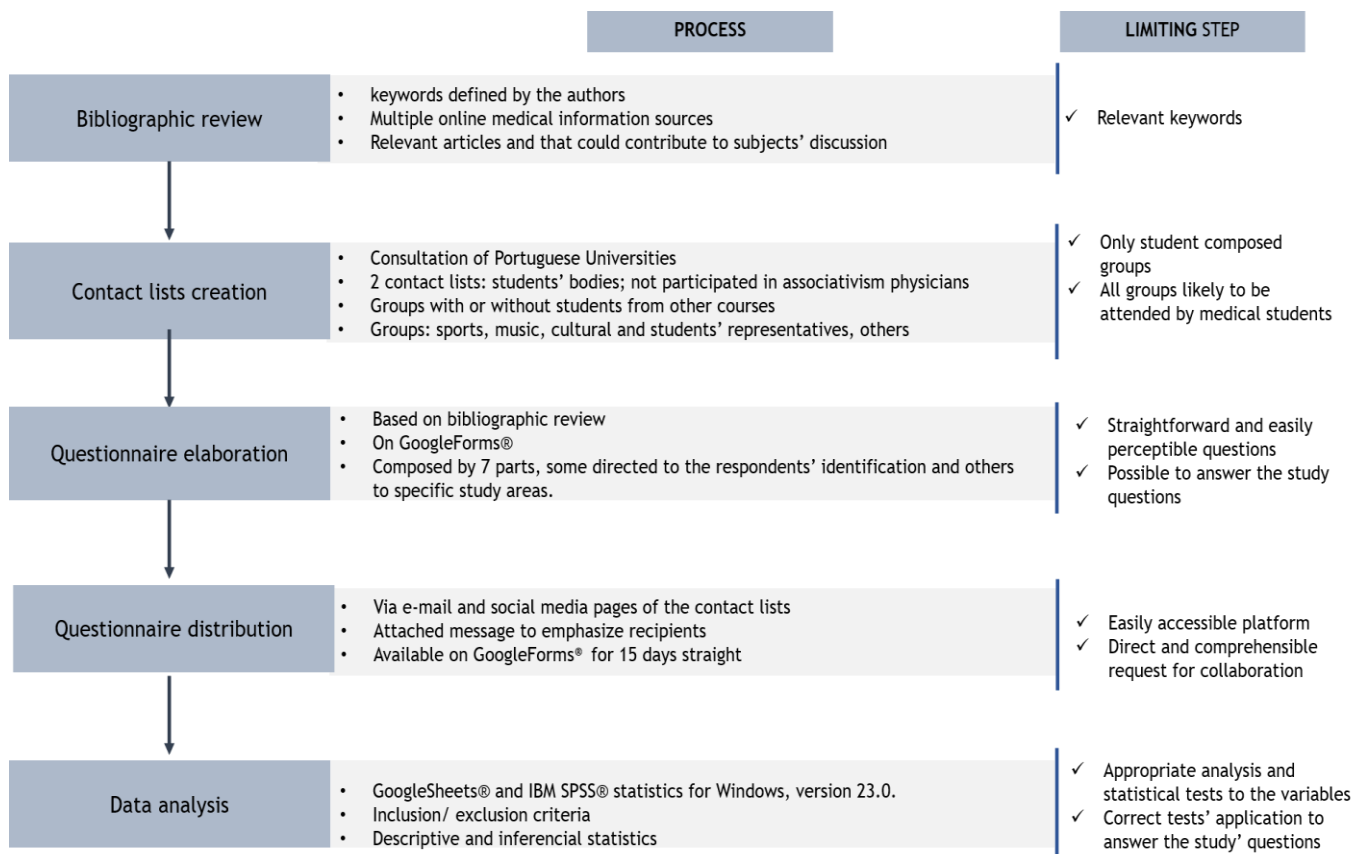
Firstly, a bibliographic review was made to better understand how much is known about leadership, healthcare teamwork and extracurricular activities, and the theoretical relationships between certain variables.

Secondly, a list of Portuguese students bodies' contacts was created, where the questionnaire was later distributed. This step allowed the study to be carried out among physicians who participated in associative groups, a group that defines this project.

Thirdly, a questionnaire was elaborated. Attention was paid on the pertinence of the questions raised and on the relevance with the subject addressed. Asking straightforward and easy-to-understand questions was another point to keep in mind when formulating the questionnaire, in order to obtain more reliable answers. All the questions were based on the bibliographic review, both on relationships already proven and on questions that were still unanswered.

Fourthly the questionnaire was distributed to the lists of contacts already drawn up through e-mail and social media pages.

Finally, the data collected was analysed using GoogleSheets® and IBM SPSS® statistics for Windows, version 23.0.. Before applying statistical tests, data was processed through application of inclusion and exclusion criteria. Finally, descriptive and inferential statistics were performed, according to the pertinence of the data and the possibility of answering the questions raised by this thesis.



Graphic 1 - Study design summary and concerns

3.2.1. Step 1: Bibliographic review

This first step of the study design was also crucial, since it allowed authors to better understand the concepts behind associations, leadership development and team work. Realizing how much is known about this area allowed a better development of this study, as well as aiding in the asking new questions and thus contribute to the discussion of the subject.

Research began with the definition of keywords related with the study, which allowed directing the investigation to relevant articles. Keywords used were: c, leadership, medical leadership, medical management, medical curriculum, medicine, medical students, young physicians, medical schools, medical education, interprofessionalism, extracurricular activities, associations, associativism, and team work.

The main online sources of medical information and content accessed were PubMed®, SciELO, Medscape, IJME, Informa Healthcare, BMJ Open medical journal, B-on and MDPI.

After applying the selected keywords on the medical sources, the next step was to identify the articles relevant to this study. Priority was given to those studies which approached developing leadership skills during medical school, the importance of leadership in healthcare and the participation on extracurricular activities.

Research work that portrayed the reality of other countries, giving a more universal and complete idea on the subject was also taken into account. It was important to identify studies in which some leadership and interprofessionalism programmes were applied, to better understand the benefits, and the major obstacles of health schools, students and other professionals.

3.2.2. Step 2: Contact lists creation

The list of students' national bodies (annex 2) was created through consultation of several Portuguese Universities. Some inclusion criteria related to the fact that these associative groups needed to have the option of being attended by medical students, regardless of whether they had students from other courses. Also, the associative groups had to be attended only by students, who also made up the board of the group. The associative students' groups known to the authors for not having been attended by medical students were excluded from the contact list.

Different associative group types were selected, namely, sports groups, Tunas (academic music groups of student's), choirs, students' representatives and social intervention groups that derive from some students' representatives.

A part of these extracurricular activities were made up only of medical students, and a few others housed students from various degrees. This was not considered exclusion criterion since some of the focus points of the study are the teamwork and leadership role that medical students plays and not who the members of the respective groups are.

With this list of contacts it was intended to reach physicians who had participated in associativism, since it would be the groups themselves that distributed the questionnaire to their former members. Notwithstanding, this method presents its risks, as the study is dependent on the student's bodies commitment and willingness to collaborate.

To obtain responses from physicians who did not attend any type of students' body's (control group), a list of contacts of physicians known by the author was created. Therefore, we will have a convenient sample that "is a type of nonprobability or nonrandom sampling where

members of the target population that meet certain practical criteria (...) are included for the purpose of the study. It was also referred to the researching subjects of the population that are easily accessible to the researcher” (32). Then, the same approach as the student bodies contact list was made towards the control group. It was also asked for these physicians to disclose the survey to colleagues. Here the study faced another disadvantage, since the study is again dependent on the commitment of the physicians contacted.

The study survey was disclosed with an attached message stating that this should only be filled by physicians who attended Portuguese medical schools, thus excluding students, other professionals and doctors, who took the degree outside of Portugal.

3.2.3. Step 3: Questionnaire elaboration

The data was collected through an individual survey elaborated on GoogleForms® (annex 1) and composed by seven parts.

The questionnaire consisted of a first page with an introductory message where some information is given, regarding the authors' identification, the surveys' purpose and whom the form adressess. To avoid possible bias on the respondents answers it was never mentioned in the e-mails nor in the surveys' introductory message any leadership or related terms (e.g. leader, leadership, leadership skills and teamwork).

The first part was dedicated to the respondents identification, namely age, attendance to medical school and elapsed time since graduation, as well as medical career degree and respective specialization area (if senior residents or specialists).

On the second part of this study questionnaire, a set of questions were put towards associativism participation. Before the possibility of a response, a definition of associativism was given as well as some concrete examples of national associative groups whose questionnaire was intended to achieve. The purpose was to clarify the concept that would be addressed next.

Then, the respondents were asked if they have participated in students' bodies, and if so it also asked the extracurricular activity area (musical, sports, students ...), and for how long they had been in these student organizations.

The third section was only addressed to the physicians who responded positively in the previous section, that is, by those who participated in associativism. Here, the questionnaire asked if in addition to having belonged to a student body, if they held board positions, for

instance, as president, vice president, treasurer or even coach. Not only was it asked if the respondent was a board member, but also for how long and how much time was spent on their board duties and meetings per week. Finally, it was asked if the physicians felt that their academic experience improved due to their extracurricular activity participation.

The next fourth, fifth and sixth sections were subdivided in two set of questions: “as student” and “as physician”. With a view to compare the self-perception towards similar situations in different stages of life (student and professional) the respondents are asked similar questions and two responses are required, one representing their feelings when they were students, and the other question represented their feelings as physician.

The fourth part, named “Self-perception”, relates to the physicians own leadership self-perception, englobing different situations associated with being a leader or, otherwise, not associated with leadership. The respondents were questioned if they felt confident working in a team, if they were calm when speaking in public and if they felt that people followed them. There were also a couple of questions that intendeds to verify if these physicians were often chosen to be team leaders as students, or even if they are now chosen by their co-workers to occupy that position.

On the fifth part - Motivational language- the questions asked were intended to assess the physicians’ self-perception of their role as a motivator element in the team. The questionnaire also seeked to understand whether the motivation, when present, achieves good results, such as having a team that listens to what their leader has to say and vice versa.

Finally, is the sixth part - Communication - that explores some nonverbal communication skills both as student and as physicians. As Richmond VP, et al. (2003) pointed out, a communicator “who engages in nonverbally immediate behaviours” is seen by others “in a more positive way” that those who don’t express these skills (29). In this section, the questions place the respondents in different situations concerning the way they felt communicating with others and explores behaviours such as making eye contact while talking with other people, tremble when presenting in public or use a variety of vocal tones when talking to others.

The questionnaire was composed with closed questions, being one multiple choice and the majority mutually exclusive questions, and one open question.

3.2.4. Step 4: Questionnaire distribution

Once the survey was elaborated, it was distributed through email, relying on the contact lists already created by the author of this study, but also in student's bodies and physician social media pages.

A message was attached to the survey, asking for the student bodies to disclose it to former members who are now young physicians. At the same time, physicians who did not attend associativism were asked to share among their circle of contacts.

Throughout the questionnaire itself, in many instances, and on the e-mail message, it was referred that it was only to be filled in by physicians.

This questionnaire was available online via GoogleForms® for 15 consecutive days.

3.3. Data analysis

The database containing the questionnaires' responses was a GoogleSheets® file associated with the respective GoogleForms® survey.

Before exporting the data to a SPSS file, some data analysis and descriptive statistics were performed. Taking into account that this study questionnaire was only addressed to physicians who studied in Portuguese Universities, exclusion criteria was applied when necessary.

Different data requires different statistical approach, thus, when in the presence of qualitative variables, frequencies analysis was carried out, namely absolute and relative frequencies as well as mode. On the other hand, some central tendency measures, such as mean and standard deviation could be used in quantitative variables.

After characterizing the sample, the data was then exported and to a SPSS file for further analysis, using IBM SPSS® statistics for Windows, version 23.0..

To answer to the studies' questions, some nonparametric hypothesis tests were applied. Due to the formulation of hypothesis, a statistic correlation between two variables was calculated through Chi-squared test and Fisher's exact test (for small sample sizes) and its respective p-value, representing the probability of correlacion.

4. Results

4.1. Study population

The questionnaire had a total of 202 responses, of which 3 were excluded from the study because they responded as being medical students, not matching the inclusive criteria of “being a physician”.

Table 1 - Study population profile

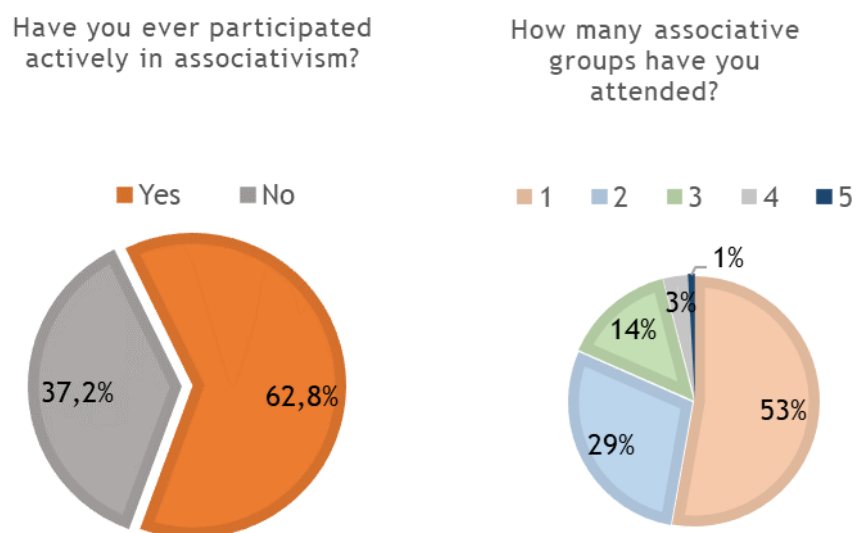
Variable	Categories	Frequencies		Mean	Mode
		Absolute N	Relative %		
Age (years)				27,1	24
Gender	Male	47	23,6		
	Female	152	76,4		
Medical School	DCBM-UAlg	1	5		
	ECS-UM	13	6,5		
	FCS-UBI	67	33,7		
	FMUC	36	18,1		
	FMUL	6	3		
	FMUP	45	22,6		
	ICBAS	21	10,6		
	NMS FCM	10	5		
Graduation grade (0 - 20 values)	10 - 12	0	0		
	13 -14	66	33,2		
	15 - 16	113	56,8		
	17 - 18	20	10,1		
	19 - 20	0	0		
Years since graduation	<2	85	42,7		
	2 - 6	79	39,7		
	6 - 10	23	11,5		
	>10	12	6		
Medical career degree	first year resident	75	37,7		
	senior resident	100	50,3		
	specialist	24	12		
	None	76	38,2		
Medical specialty	General Practice	43	21,6		
	Remaining	80	40,2		

Table 1 shows a summary of the descriptive results of the analysis. Of the 199 physicians who participated in this study, 152 were female (representing 76,4% of the responses) and 47 were male (representing 23,6% of the responses) and mean age of 27,1 years of age (standard deviation of 3,39).

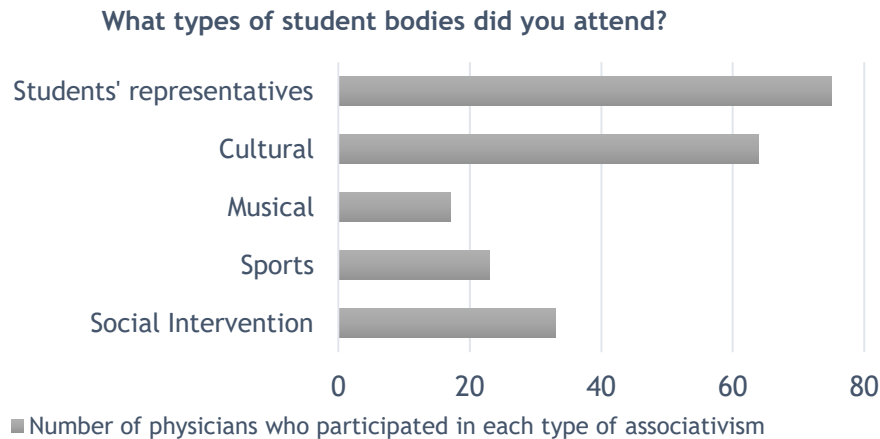
Most of the physicians participating in this study attended FCS-UBI, FMUP or FMUC.

4.2. Extracurricular activities participation

As mentioned above, on the second part of the study questionnaire, some questions regarding associativism participation were asked. Depending on the answer given for the first question “Have you ever participated actively in associativism?” the study population was divided in two main cohorts: G1- physicians who participated in student groups (62,8% of the sample) and G2 - those who did not participate (Graphic 2). Then, it was asked to G1 to specify how many and what type of associativism they have participated, whose results are shown in charts 2 and 3.



Graphic 2 - Representation of G1 and G2 relative frequencies and number of associative groups attended



Graphic 3 - Participation of physicians in different types of student bodies

Concerning G1, almost half of respondents (44,8%) said they had stopped attending the associative group more than 2 years ago, 36,8% (n=46) declared they stopped attending the respective group less than 2 years ago and about 18% (n=23) are still active.

In order to complete the second part of the questionnaire it was asked the question "For how long have you been active in your(s) association(s)?", which mode was the answer "5 - 6 years" with 30,4% of the G1 responses. The second most chosen answer was "3 - 4 years", which was signaled by 35 physicians belonging to G1.

4.3. Participation in associativism as a board member

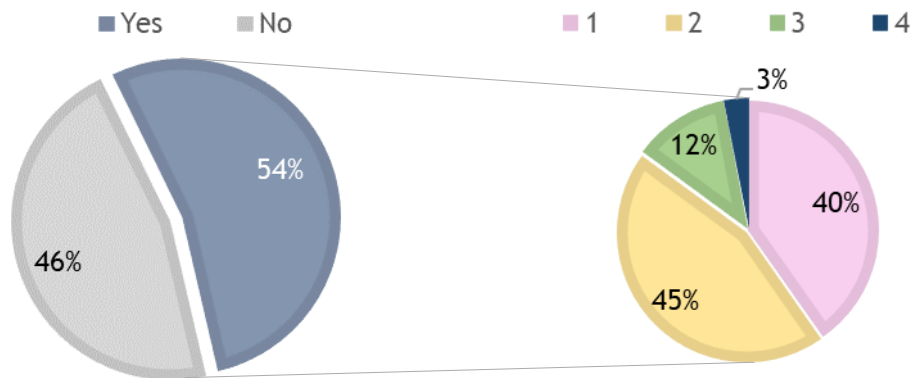
As mentioned before, the third part of the questionnaire was dedicated to board members of the student bodies mentioned.

In order to select, among G1, those who were also board members of their respective student bodies (G1b), the respondents answered the question "Did you take any board position?". Here the results shows that 53,6% of G1 (n= 67) were also part of the student body board, and the remaining 46,4% represented G1nb (physicians from G1 who were not board members). Chart 4 shows relative frequencies of G1b and G1nb as well as the number of board positions that the physicians belonging to G1 performed.

With regard to the board positions attended by G1b, the most performed was "Assistant board member" with 29 responses, followed by "President" (n=21), and with 18 responses for both "Treasurer" and "Other" (Graphic 5).

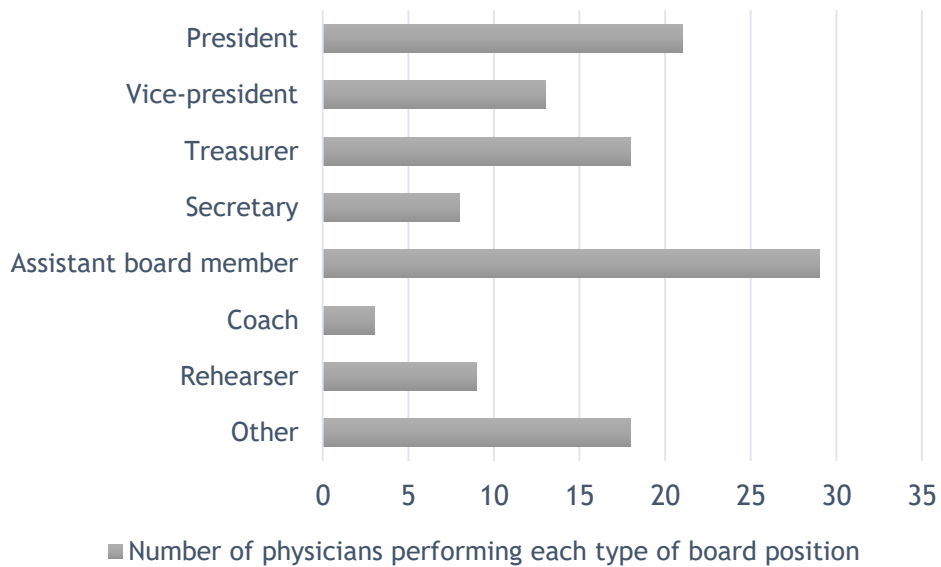
Did you take any board position?

How many board positions have you held?



Graphic 4 - Representation of G1b and G1nb relative frequencies and the G1b number of board positions

What was/were your board position/s?



Graphic 5 - Board positions performed by G1b

Physicians from G1b performed their respective board duties mostly between “1 - 2 years” (32 responses, representing 47,8% of G1b), and “2 - 4 years”, with 28 responses and representing 41,8% of G1b (mode 1 - 2 years) during academic studies. Results shows that 41,8% of G1b spent between 5 to 8 hours per week on their board duties and 47,8% had, also per week, 1 to 2 reunions related to their board position. Only 8 physicians (relative

frequency= 11,9%) said they spent more than 12 hours per week working for their activity as a board member.

After exploring G1b participation in associativism, physicians were asked if they felt that their participation improved their academic experience. Results to this questions showed that 97% responded “Yes” (n=65). The same way, it was asked if they felt that their participation helped them improve teamwork and leadership self-competencies, through a question where they had to choose the three most important/developed competencies, in a list of several competencies. Results are shown in table 2. Here we can see that the three most selected responses were “Time management” (n=46), “Public communication” (n=27) and “Commitment” (n=26).

Table 2 - Absolute (n) and relative (%) frequencies of the teamwork and leadership competencies

Teamwork/leadership competency	G1b	
	n	%
Confidence	16	23.9
Public communication*	27	40.3
Time management*	46	68.7
Prioritize situations	25	37.3
Accept colleagues' opinions	11	16.4
Accept superiors' opinions	0	0
Trust the team	11	16.4
Listen to colleagues	11	16.4
Iniciative	18	26.9
Commitment*	26	38.8
Listen to criticism	9	13.4
Other	1	1.5

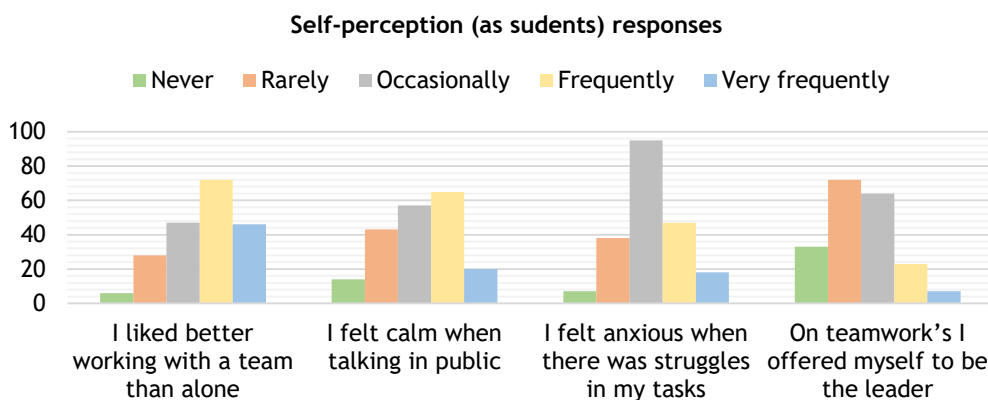
*Teamwork and leadership competencies most chosen by G1b physicians

To finalize the third part of the studys' survey, a final question was put to physicians, this time an open-endedded question, where they could write the milestones they consider to have left on their respective/s associative groups. Responses to this question are in annex 3.

4.4. Leadership self-perception

As said above, on this section the questions were responded in two phases: first as “medical student” and then as “physician”.

Firstly, the descriptive statistics of the data was performed. Annex 4 show table 9 and 9.1 with a summary of the data relative frequencies. On graphic 6 and 7 are some responses of the distribution given by al physicians to the section “Self-perception”.



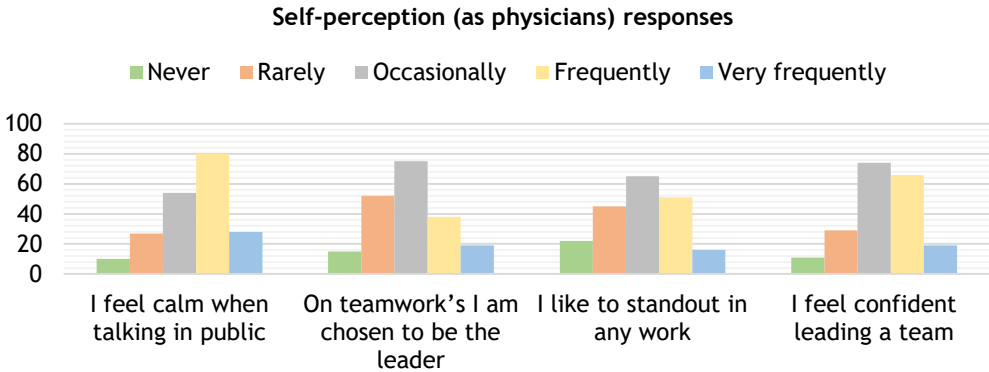
Graphic 6 - distribution of physicians responses (G1 and G2) to “self-perception” first set of questions

To the question “I liked better working with a team than alone” we can see on annex X that 63,2% of G1 responded “frequently/very frequently” and 52,7% of G2 give the same answer. When looking inside G1 for the same question, results showed that 76,1 of G1b liked better to work with a team frequently/very frequently, while only 48,28% of G1nb give the same answer.

Results also shows that half of G1 (49,6%) frequently/very frequently felt calm when talking in public, and only 31% of G2 gave the same answer (G2 mode is never/rarely to question: “I felt calm when talking in public”).

Looking at G1b, during their medical students years 46,27% felt anxious when there were struggles in their tasks, a similar percentage, to the same answer given by G1nb (48,28%). To the question “On teamwork’s I offered myself to be the leader”, 22,39% of G1b responded “frequently/very frequently” (mode “Occasionally”) and 8,62% of G1nb choose the same answer (mode “Never/rarely”).

About the second set of questions on “Self-perception”, where physicians answered as they felt as professionals, results showed that the majority enjoy work in a team frequently/very frequently (91,2% of G1 and 90,54% of G2). To the question “I am calm when facing an adversity”, 60% of G1 responded “Frequently/very frequently”, and 44,59% of G2 gave the same answer. 49,6% of G1 feel they can make people do what they want, while 36,49% of G2 feel the same way (G2 mode is “Occasionally”).



Graphic 7 - distribution of physicians responses (G1 and G2) to “self-perception” second set of questions

To the question “I can’t resolve problems even if I try hard enough”, both G1b and G1nb mode was “Never/Rarely”, 17,24% of G1nb responded “Frequently/Very frequently” and none of G1b gave that answer. More than half of G1b feel frequently confident leading a team (56,72%) while 39,66% of G1nb felt the same way.

Next, some statistical tests were performed, of witch, results are shown on table 3 and table 4.

Table 3 - Resume of Chi-squared and Fishers tests' p-values on "Self-perception", as students

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
I liked better working with a team than alone	0.341	0.327			0.003	0.003		
I felt confident working alone	0.600	0.640			0.321	0.309		
I felt confident in group works	0.072	0.056			0.075	0.098		
I felt calm when talking in public	0.015	0.015			0.082	0.082		
I could resolve problems when I tried hard enough	0.275	0.340			0.237	0.257		
I was calm when facing an adversity	0.058	0.065			0.495	0.495		
I could make people do what I wanted	0.004	0.005			0.021	0.021		
I felt anxious when there was struggles in my tasks			0.030	0.028			0.346	0.366
I felt capable of facing efficiently adversities	0.744	0.811			0.013	0.006		
On teamwork's I was chosen to be the leader	0.355	0.357			0.333	0.322		
On teamwork's I offered myself to be the leader	0.110	0.114			0.013	0.013		
I liked to standout in any work	0.948	0.982			0.227	0.225		

(Green tone indicates "correlation" between the variables (p-value<0.05), yellow indicates a "tendency" to correlation and red indicates "no correlation")

Because the study intended to see if there was any correlation between variables and the physicians, the two inferential tests used were: Chi-squared test and Fishers Test.

Both tests analyse if there is a relation between two variables and the answer is given in p-value, shown next. On table 3 we have p-values from both statistical tests to the first set of questions asked on "Self-perception", referred to the what physicians remember feeling while students. Table 4 shows the p-values related to the second series of questions of this survey section.

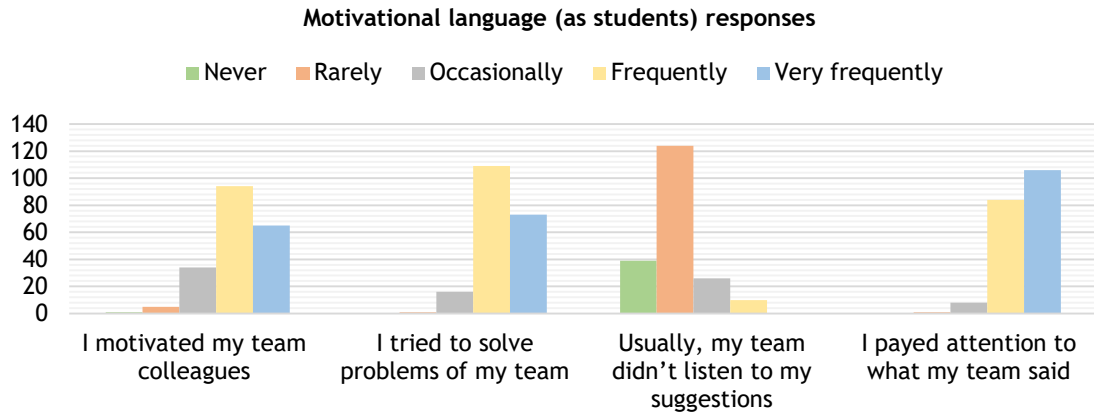
Table 4 - Summary of Chi-squared and Fishers tests' p-values between "Self-perception" and physicians

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
I like to work as a team	0.122	0.230			0.067	0.111		
I feel confident working alone	0.882	0.936			0.871	0.908		
I feel confident in group works	0.648	0.729			0.534	0.662		
I feel calm when talking in public	0.037	0.040			0.291	0.302		
I can't resolve problems even if I try hard enough			0.110	0.114			0.208	0.210
I am calm when facing an adversity	0.075	0.063			0.655	0.678		
I can make people do what I want	0.085	0.098			0.022	0.021		
I feel anxious when there's struggles in my tasks			0.016	0.017			0.876	0.899
I feel capable of facing efficiently adversities	0.137	0.367			0.033	0.070		
On teamwork's I am chosen to be the leader	0.269	0.268			0.475	0.478		
On teamwork's I offer myself to be the leader	0.014	0.015			0.812	0.818		
I like to standout in any work	0.447	0.478			0.659	0.691		
I feel confident leading a team	0.077	0.076			0.018	0.020		
I feel my team trusts me	0.296	0.343			0.427	0.626		
I feel my team trusts me as a leader	0.057	0.057			0.112	0.135		

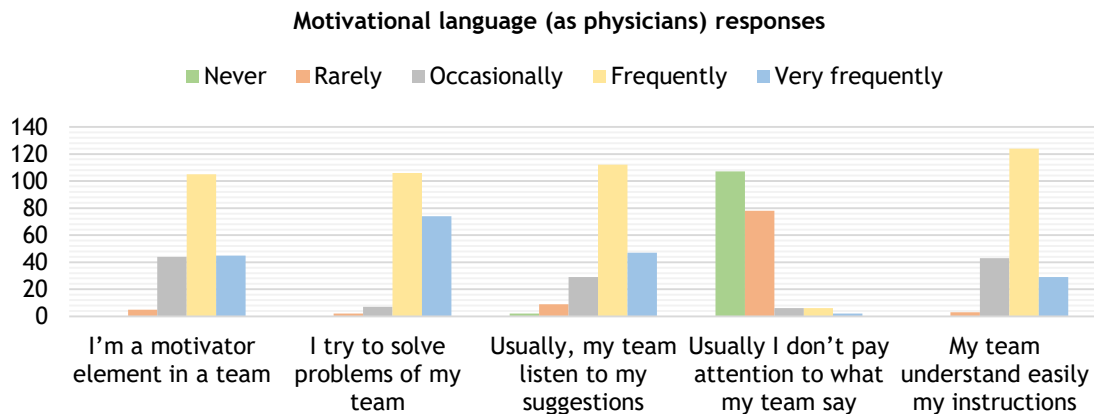
(Green tone indicates "correlation" between the variables (p-value<0.05), yellow indicates a "tendency" to correlation and red indicates "no correlation")

4.5. Motivational language

Like "Self-perception", on this section, the physicians were asked to answer two sets of questions: the first related to how they felt as medical students and the second on how they feel now, as professionals. Descriptive statistics of this section data is on annex 5, namely the relative frequencies (tables 10 and 10.1). Graphics 8 and 9 shows the responses distribution of the first and second set of questions of this section.



Graphic 8 - distribution of physicians responses (G1 and G2) to “motivational language” first set of questions



Graphic 9 - distribution of physicians responses (G1 and G2) to “motivational language” second set of questions

Results shows that 94,4% of G1 and 86,49% of G2 frequently/very frequently tried to solve the teams´ problems while medical students. To the question “I motivated my team colleagues” the majority of G1b and G1nb responded “frequently/very frequently” (88,06% and 79,31%, respectively) and none of G1b answered “Never/rarely”.

10,34% of G1nb said that frequently/very frequently their team did not listen to their suggestions, while none of G1b responded that opcion. Regarding the same question, both G1b and G1nb most of the answers were “Never/rarely” (86,57% and 79,31%, respectively).

When asked as physicians, G1 and G2 gave identical responses to the question “My team understood my instructions easily”: 77,6% of G1 and 75,68% of G2 chose “Frequently/Very frequently (both mode) and only 1,6% of G1 and 1,35% answered “Never/rarely”. A similar pattern is found for question “Usually I don’t pay attention to what my team say”, where both G1b and G1nb mode is “Never/rarely” (G1b 94,03% and G1nb 94,83%).

On table 5 are the p-values from both statistical tests to the first set of questions asked on “Motivational Language”, referred to what physicians remember to feel while students. Table 6 shows the p-values related to the second series of questions of this survey section.

Table 5 - Resume of Chi-squared and Fishers tests’ p-values of “Motivational language”, as students

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
I motivated my team colleagues	0.121	0.112			0.138	0.245		
I tried to solve problems of my team	0.096	0.076			0.558	0.703		
Usually, my team didn’t listen to my suggestions			0.821	0.833			0.008	0.022
I payed attention to what my team said	0.370	0.537			0.769	1		

(Green tone indicates “correlation” between the variables (p-value<0.05), yellow indicates a “tendency” to correlation and red indicates “no correlation”)

Table 6 - Resume of Chi-squared and Fishers tests’ p-values of “Motivational language”, as physicians

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
I’m a motivator element in a team	0.258	0.261			0.595	0.565		
I try to solve problems of my team	0.633	0.513			0.336	0.396		
Usually, my team listen to my suggestions	0.543	0.579			0.508	0.543		
Usually I don’t pay attention to what my team say			0.331	0.372			0.953	1
My team understand easily my instructions	0.931	0.878			0.424	0.493		

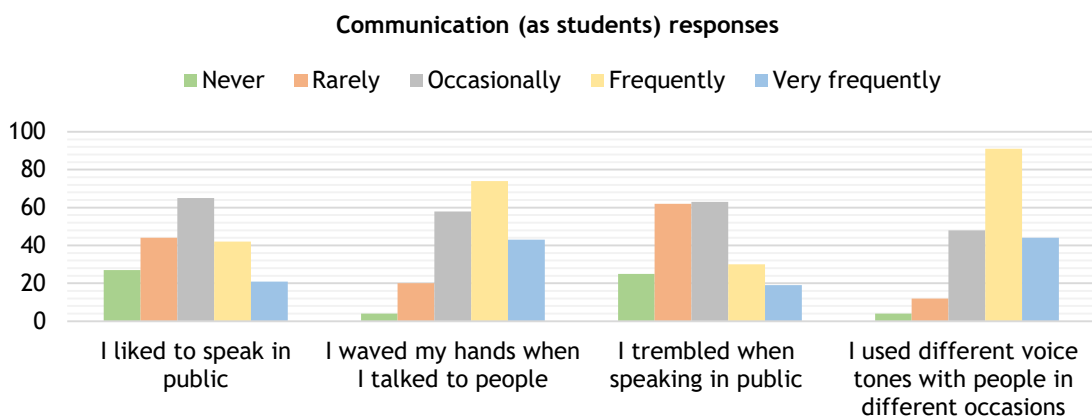
(Green tone indicates “correlation” between the variables (p-value<0.05), yellow indicates a “tendency” to correlation and red indicates “no correlation”)

4.6. Communication

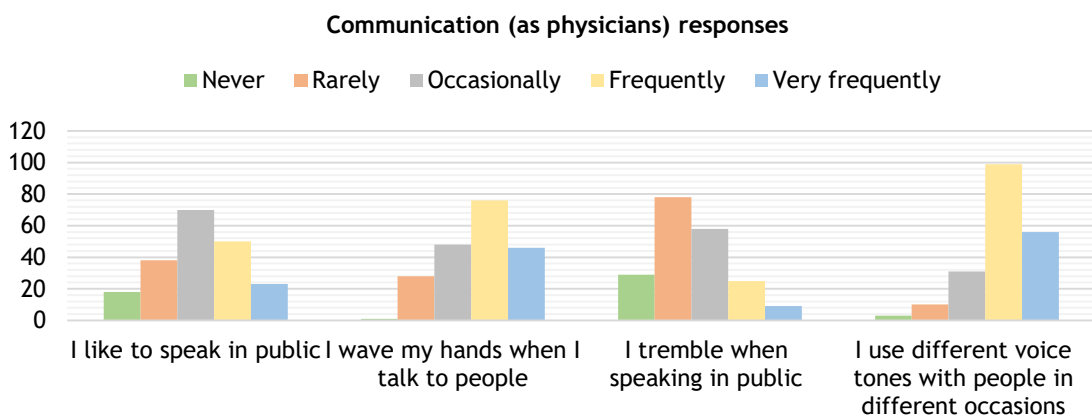
Results of the last questionnaire section are presented bellow, and also in annex 6.

Descriptive statistics, namely relative frequencies of this data is found in annex 6, in the form of two tables, table 11 concerning the first set of questions (as medical students) and table 11.1 representing the set of questions to be answered as physicians.

Next , graphics 10 and 11 shows some responses' distribution of the first and second set of questions of this section, respectively.



Graphic 10 - distribution of physicians responses (G1 and G2) to “Communication” first set of questions



Graphic 11 - distribution of physicians responses (G1 and G2) to “Communication” second set of questions

Results of this section shows that half of G2 never or rarely liked to speak in public as students, whereas 27,2% of G1 chose the same option (G1 mode is “Frequently/very frequently”).

In the question “I trembled when speaking in public”, both G1 and G2 mode is “Never/rarely” (43,2% and 44,59%, respectively) and similar results are also presented in other options: “Occasionally” was responded by 31,2% of G1 and by 32,4% of G2 and “Frequently/very frequently” by 25,6% of G1 and 22,97 of G2.

When looking at G1, results show that 58,2% of G1b felt they could easily convince their colleagues of their ideas and 43,10% of G1nb felt the same way. On the contrary, 10,34% of G1nb responded they “Never/rarely” felt they could do such thing, just as 1,49% of G1b.

As physicians, 98,5% of G1b and 91,3 of G1nb said they frequently look people in the eyes when talking to them, and also, none of G1 responded “Never/rarely” to this question.

G1b and G2 show different responses to the second set question “I like to speak in public”, where 45,6% of G1 responded “Frequently/very frequently” and only 21,62% of G2 give the same answer (36,49% of G2 responded “Never/rarely”).

Table 7 - Resume of Chi-squared and Fisher tests’ p-values of “Communication”, as students

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
Usually, I look people in the eyes when talking to them	0.395	0.385			0.129	0.115		
I don't feel comfortable when talking to people			0.895	0.932			0.529	1
I like to speak in public	0.003	0.002			0.385	0.388		
I don't approach people when I want to talk to them			0.606	0.582			0.774	0.789
I wave my hands when I talk to people	0.108	0.108			0.960	1		
I tremble when speaking in public			0.735	0.748			0.698	0.711
I gain people attention when presenting			0.307	0.344	0.497	0.565		
I use different voice tones with people in different occasions	0.352	0.360			0.532	0.560		
I can easily convince my colleagues of an idea of mine	0.508	0.541			0.769	0.785		

(Green tone indicates “correlation” between the variables (p-value<0.05), yellow indicates a “tendency” to correlation and red indicates “no correlation”)

On table 7 we have p-values from both statistical tests to the first set of questions asked on “Communication”, while Table 8 shows the p-values related to the second series of questions of this survey section.

Table 8 - Resume of Chi-squared and Fishers tests’ p-values of “Communication”, as physicians

Variable	G1		G2		G1b		G1nb	
	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher	Chi-squared	Fisher
Usually, I look people in the eyes when talking to them	0.395	0.385			0.129	0.115		
I don’t feel comfortable when talking to people			0.895	0.932			0.529	1
I like to speak in public	0.003	0.002			0.385	0.388		
I don’t approach people when I want to talk to them			0.606	0.582			0.774	0.789
I wave my hands when I talk to people	0.108	0.108			0.960	1		
I tremble when speaking in public			0.735	0.748			0.698	0.711
I gain people attention when presenting			0.307	0.344	0.497	0.565		
I use different voice tones with people in different occasions	0.352	0.360			0.532	0.560		
I can easily convince my colleagues of an idea of mine	0.508	0.541			0.769	0.785		

(Green tone indicates “correlation” between the variables (p-value<0.05), yellow indicates a “tendency” to correlation and red indicates “no correlation”)

5. Discussion

The study sample, was representative, and was composed of 199 physicians responses, of which 125 were physicians who had participated in associativism (G1) and 74 were physicians who hadn't (G2). 76,4% were woman, witch meets the nacional reality.

On average, respondents were 27 years old (standard deviation of 3,39) and had left the associative groups about 2 to 4 years ago, which confirms the target audience of young doctors.

30,4% of G1 said they belonged to the students' body for 5 to 6 years, which is justified by the fact that the medical course in Portugal lasts 6 years.

When questioned if their associative experience improved their academic experience, 97% of G1 responded "Yes", and only 2 physicians responded "No", showing the positive impact on students' lives. Thus, this study helps to answer the question raised by Almasry, M. et al (2017) on the perception of students towards associative participation. In order to complete the questionnaire above-mentioned question, G1 was asked to specify which skills they felt associativism helped developed, and the most responses given were: time management, public communication and commitment. This confirms what has been suggested by Balyer A. and Gunduz Y. (2012) (16), that extracurricular activities increased students' academic and social skills.

Due to sample size and the fact that a convenience sample concept applies to group "G2" no large general conclusions can be extrapolated, however, conclusions about the study sample are valid and valuable.

Regarding the questionnaire sections "Self-perception", "Motivational language" and "Communication", they represent the notions that all physicians participating in this study have on their own behaviour and on their own leadership and team member skills. According to the results, it was possible to establish an association with participating in associativism and some communicative skills and confidence, as suggested by Luthans, F. (2002).

This study showed not only that there is a correlation between G1 and enjoying and feeling calm when speaking in public, both as students and as physicians, but also that public communication was one of the most improved skills due to students bodies' participation.

This can be explained by the fact that these extracurricular activities promoted situations where they could explore their abilities and develop them, by interaction with other team elements.

As mentioned before, resilience is a feature strongly associated to the leader. In this study, student bodies' nonparticipating physicians considered that, as students, they were anxious when facing adversity, and on the contrary, the attending physicians seem to recognize that they were able to remain calm in the same situations. There was not any correlation between other resilience variables and physicians who participated in associativism, when comparing with physicians who did not. Notwithstanding, when comparing physicians who had been board members to those who participated in students' bodies but have not been board members clear associations are establish. Physicians who had been board members seem to feel more capable to face efficiently adversities, both as student and as professionals, than those who were not leaders on their groups. These results meet the suggestions of Almasry, M. et al (2017), Urlings-Strop, LC. Et al (2016), Lumley, S. et al (2015) and Balyer, A. et al (2012) on the association of being a leader and have good emotional adjustment.

Participation in associativism also showed a tendency for correlation with being confident when working in a group as students, as suggested by Luthans, F. (2002), however, the same is not observed as physicians. This may be due to the hypothesis that confidence also can be trained in the workplace (30), and those physicians who have not been students bodies members could develop some skills on their daily work. The same way, as a physician, there seems to be no association with being confident when working in a team, whereas it is a correlation tendency with being confident leading a team and also feeling that the team trusts them as leaders. Besides, there is evidence that physicians who were also board members feel confident when leading a team. These results are in conformity with bibliographic review.

In addition, physicians who had participated in associativism more often offer themselves to be the team leader, the same way they did as medical students.

Communication is fundamental for, not only, good leadership performance, but also for team performance. In this study, gesticulation when communicating is associated to physicians who had engaged in extracurricular activities, as students, and it may also be a correlation as physicians. The same way, it appears to be a possible relation between physicians who were board members as students and visual contact when speaking to others, as suggested by Richmond, VP. et al (2003). In this sample it seems not to exist an association between participation in associativism and other communication features (tremble when presenting or use different voice tones when talking to others), what may be due the size of the sample, and further investigation work must be carried out to fill these gaps.

At last, this study was also able to establish a correlation between participating in students bodies and the ability to convince others, either as a student or as a professional . However, it is in the group of physicians who were board members that this association is even more

evident, showing that it is not only necessary participation in associativism, but also engage in more responsibilities, that make physicians develop their leadership skills.

Despite the fact that results did not show association between engage in students bodies and being chosen to be team leaders as physicians, this hypothesis should not be discarded since the remaining results demonstrated a great association between these physicians and leadership skills. However, we can explain this result with the fact that the study sample consists, essentially, of young physicians, who have not yet had many opportunities to be leaders on their work teams.

Since, based on our results, there is evident correlation between associativism and physicians self-perception of leadership skills, it is relevant to hypothesize that teams constituted and led by former associative physicians can perform better than teams with non-participating physicians. A reason for this may be the fact that healthcare teams with better leadership and management components increase the quality and integration of care (33), and further research should be done to improve medical care.

Further research work will be needed to show if students of other health professions benefit equally, by developing teamwork skills, with extracurricular activities engagement.

5.1. Study limitations

This study has some limitations, namely, the small sample obtained, and the fact that some medical schools had a small representation (eg. only 6 respondents). As a result, this does not allow national extrapolations without careful consideration.

Due to logistics and time constraints for this type of work, the researcher could only query the group of physicians who did not participate in associativism in a non-random way. These constitute a convenience sample, which prevents us from drawing general associations and conclusions. Notwithstanding, we can make conclusions to the study sample.

Regarding the questionnaire applied, it was created by the study author, and validated by the masters' advisors. Although it suffered not additional curation, it was used only after being tested in a small group of people who were not part of the study group target.

6. Conclusions

This study concludes that the active participation in extracurricular activities plays an important role for the development of certain leadership skills in teamwork.

There are many studies that evaluate the importance and impact of multiprofessional courses in health degrees, all of which conclude that there are many advantages for both health professionals and patients. Still, there is not a big body of knowledge in what concerns the relationship of their outcomes and the participation in associativism. This study intended to fill in some of these gaps, and contribute to this topic.

The most important aspect of this study is the understanding of the positivity that physicians attribute to their participation in associativism. After describing which are the competences that they could improve within student groups, it can be concluded, in this sample, that time organization, public communications and commitment are the most important ones that medicine students can develop in these associations.

Furthermore, it can be concluded that taking part in these extracurricular activities helps physicians to better cope with public exposure, feeling calmer when having to present in public. In fact, doctors that take part in academic groups not only feel calmer, but like talking in public.

Interestingly, in competences that demonstrate resilience, participating in the associations appears to be not enough, hence students are required to take part in the board, namely being subject to more intense stimuli and bigger responsibilities. In this sample it can be concluded that those who took part in the board are more capable to effectively dealing with adversities.

Being confident was one of the mentioned components required for leaders to effectively lead. Being an inspiration for activities and influencing others in their actions are other requirements for leadership and where linked to associativism.

It can be concluded that more research should be carried out, and new takes on leadership should be developed for the entirety of society to benefit from it.

For the associativism movement to grow even more in medical schools, it is necessary for these schools to recognize its educational value, promote their participation and solve barriers and limitations. Some ways to accomplish this is by giving financial help, space or other facilities if needed. Also, integrate student bodies into the curriculum and give up some lecture time for students to become involved in these activities.

7. Future work

There are diverse applications of this study, whether in future research and in improving the medical schools perceptions towards associativism.

Future work should recreate this study with a larger and more representative sample to cover some of the present limitations, and then be able to generalise conclusions to national physicians. In addition, it would be interesting to do the same approach in medical schools from other countries, in order to achieve new conclusions and, maybe, improve health care leadership development worldwide.

Since this study relayed on physicians responses, it was limited to their self-perception of leadership and team work. To be able to evaluate the reality of health care teams and the concrete results achieved by physicians who engaged in associativism, other metrics than “self-perception” should be applied and new tools should be developed.

This study can, also, serve as a guide for future integration of extracurricular activities into the medical curriculum to meet the changing health care demands. Medical schools can found here some of the knowledge lacking on the benefits of engaging in student bodies and adapt their approach, in order to contribute to the training of more complete and competent physicians.

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9. Annexes

9.1. ANNEX 1 - Questionnaire

Percurso académico e médico - Competências não técnicas

O meu nome é Vera Teixeira e sou estudante do 6º ano do Mestrado Integrado em Medicina da Faculdade de Ciências da Saúde da Universidade da Beira Interior. No âmbito da realização da minha tese de mestrado, destina-se este questionário a médicos para avaliação do seu percurso em relação às competências não técnicas. O questionário é anónimo com tempo estimado 7 minutos.

Obrigada pela colaboração.

***Obrigatório**

Identificação

1. **Idade ***

Marcar apenas uma oval.

- <24
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32
- 33
- 34
- 35
- >35

2. **Género ***

Marcar apenas uma oval.

- Feminino
- Masculino
- Outro

Percurso Académico

3. Escola médica que frequentou *

Marcar apenas uma oval.

- DCBM - UAIG
- ECS - UM
- FCS - UBI
- FMUC
- FMUL
- FMUP
- ICBAS
- NMS | FCM

4. Classificação final da escola médica *

Marcar apenas uma oval.

- 10 - 12 valores
- 13 - 14 valores
- 15 - 16 valores
- 17 - 18 valores
- 19 - 20 valores

5. Tempo decorrido desde a graduação na escola médica *

Marcar apenas uma oval.

- < 2 anos
- 2 - 4 anos
- 4 - 6 anos
- 6 - 8 anos
- 8 - 10 anos
- > 10 anos

6. Grau actual da carreira médica *

Marcar apenas uma oval.

- Interno/a de Ano Comum
- Interno/a de especialidade
- Médico/a especialista
- Outra: _____

7. Qual a sua especialidade, segundo a Ordem dos Médicos portuguesa? *

Marcar apenas uma oval.

- Nenhuma
- Anatomia Patológica
- Anestesiologia
- Angiologia e Cirurgia Vascular
- Cardiologia
- Cardiologia Pediátrica
- Cirurgia Cardiorácica
- Cirurgia Geral
- Cirurgia Maxilo-Facial
- Cirurgia Pediátrica
- Cirurgia Plástica Reconstructiva e Estética
- Dermato-Venereologia
- Doenças Infecciosas
- Endocrinologia e Nutrição
- Estomatologia
- Gastrenterologia
- Genética Médica
- Ginecologia/Obstetrícia
- Imunoalergologia
- Imunohemoterapia
- Farmacologia Clínica
- Hematologia Clínica
- Medicina Desportiva
- Medicina do Trabalho
- Medicina Física e de Reabilitação
- Medicina Geral e Familiar
- Medicina Intensiva
- Medicina Interna
- Medicina Legal
- Medicina Nuclear
- Medicina Tropical
- Nefrologia
- Neurocirurgia
- Neurologia
- Neurorradiologia
- Oftalmologia
- Oncologia Médica
- Ortopedia
- Otorrinolaringologia
- Patologia Clínica
- Pediatria
- Pneumologia
- Psiquiatria
- Psiquiatria da Infância e da Adolescência
- Radiologia
- Radioncologia
- Reumatologia
- Saúde Pública
- Urologia

Participação no associativismo estudantil

Antes de responder às seguintes questões é importante ter presente a definição de ASSOCIATIVISMO JUVENIL:

Grupo de pessoas que trabalham em equipa numa mesma organização para obtenção de objetivos comuns, sendo que aqui se refere, por exemplo, a Núcleos de estudantes, Tunas Académicas, desporto académico e ainda Grupos corais, teatro e dança durante o percurso académico.

8. Já participou, de alguma forma activa, em associativismo? *

Marcar apenas uma oval.

- Sim
 Não *Passe para a pergunta 20.*

Participação no associativismo estudantil

9. Em que tipo/s de associativismo participou? *

Marcar tudo o que for aplicável.

- Estudantes (Núcleos de estudantes)
 Cultural (Tunas académicas, dança, teatro)
 Musical (coro, orquestra, grupo de fados)
 Desporto (desporto universitário, desporto federado)
 Social (grupos de intervenção social)
 Outra: _____

10. Há quanto tempo deixou o/s grupo/s associativo/s?

Marcar apenas uma oval.

- Ainda activo
 < 2 anos
 2 - 4 anos
 4 - 6 anos
 6 - 8 anos
 8 - 10 anos
 > 10 anos

11. Durante quanto tempo esteve activo no/s grupo/s associativo/s? *

Marcar apenas uma oval.

- < 1ano
 1 - 2 anos
 3 - 4 anos
 5 - 6 anos
 > 6 anos

12. Ocupou algum/s cargo/s de direcção? *

Marcar apenas uma oval.

- Sim
 Não *Passe para a pergunta 20.*

Cargo de direcção

13. Qual/ais o/s cargo/s que ocupou? *

Marcar tudo o que for aplicável.

- Presidente / Magister
- Vice Presidente / Vice Magister
- Tesoureiro/a
- Secretário/a
- Vogal
- Treinador/a
- Ensaaiador/a
- Outro

14. Durante quanto tempo esteve activo no/s grupo/s associativo/s, em cargos de direcção? *

Marcar apenas uma oval.

- < 1 ano
- 1 - 2 anos
- 2 - 4 anos
- 4 - 6 anos
- 6 - 8 anos
- > 8 anos

15. Em média, de todos os anos em que participou, quanto tempo lhe tomaram as suas funções por semana? *

Marcar apenas uma oval.

- < 5 horas
- 5 - 8 horas
- 9 - 12 horas
- > 12 horas

16. Em média, de todos os anos em que participou, quantas reuniões ligadas às suas funções teve, por semana? *

Marcar apenas uma oval.

- < 1 reunião
- 1 - 2 reuniões
- 3 - 4 reuniões
- 5 - 6 reuniões
- > 6 reuniões

17. Sente que a sua experiência académica melhorou por ter participado no associativismo? *

Marcar apenas uma oval.

- Sim
- Não

18. Caso considere que o/s grupo/s associativo/s que integrou o/a ajudaram a desenvolver competências de trabalho em equipa e liderança, identifique 3 da seguinte lista: *

Marcar tudo o que for aplicável.

- Confiança
- Comunicação em público
- Organização de tempo
- Priorizar situações
- Aceitar opiniões de colegas
- Aceitar opiniões de superiores
- Confiar na equipa
- Saber ouvir os colegas
- Iniciativa
- Comprometimento
- Ouvir críticas
- Outra

19. Que marcos considera ter deixado na/s instituição/ões associativa/s em que participou?

Auto Percepção

20. Enquanto estudante: *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Gostava mais de trabalhar em equipa do que sozinho/a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia-me confiante a fazer tarefas sozinho/a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia-me confiante a fazer tarefas em grupo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia-me calmo/a quando tinha de falar em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conseguia resolver problemas se me esforçasse o suficiente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conseguia manter a calma quando enfrentava uma adversidade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conseguia que as pessoas fizessem o que eu queria	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia-me ansioso/a se aparecia uma dificuldade numa tarefa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia-me capaz de lidar eficientemente com as adversidades	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nos trabalhos de grupo eu era escolhido/a para ser o/a líder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Nos trabalhos de grupo eu oferecia-me para ser o/a líder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Em qualquer trabalho eu gostava de me destacar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Enquanto médico/a *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Gosto de trabalhar em equipa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me confiante em fazer tarefas sozinho/a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me confiante a trabalhar em equipa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me calmo/a quando tenho de falar em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Não consigo resolver problemas, mesmo que me esforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consigo manter-me calmo/a quando enfrento uma adversidade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consigo que as pessoas façam o que eu quero	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me ansioso/a quando existem dificuldades nas minhas tarefas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me capaz de lidar eficientemente com as adversidades	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Num trabalho em equipa sou frequentemente escolhido/a para ser líder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nos trabalhos em equipa eu frequentemente ofereço-me para ser o/a líder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Em qualquer trabalho gosto de me destacar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto-me confiante ao liderar uma equipa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Num trabalho em equipa, sinto que a minha equipa confia em mim	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Num trabalho em equipa, sinto que confiam em mim como líder	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Linguagem motivacional

22. Enquanto estudante *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Nos trabalhos de grupo eu motivava os meus colegas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nos trabalhos de grupo, quando haviam problemas eu tentava resolvê-los	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Normalmente, o meu grupo de trabalho não ouvia as minhas sugestões	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prestava atenção ao que o meu grupo de trabalho tinha a dizer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Enquanto médico/a *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Numa equipa eu sou um elemento motivador	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No trabalho em equipa, quando existem problemas eu tento resolvê-los	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A minha equipa, normalmente ouve as minhas sugestões	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Normalmente não presto atenção ao que a minha equipa sugere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As pessoas percebem facilmente as minhas instruções	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comunicação

24. Enquanto estudante *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Normalmente, enquanto falava com pessoas não as olhava nos olhos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gostava de falar em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Não me sentia confortável a falar com as pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aproximava-me das pessoas quando queria falar com elas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Normalmente gesticulava as mãos ao falar com outras pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tremia enquanto apresentava em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perdia constantemente a atenção das pessoas quando fazia uma apresentação	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usava diferentes tons de voz para falar com as pessoas, em diferentes ocasiões	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentia que podia convencer facilmente os meus colegas de uma ideia minha	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Enquanto médico/a *

Marcar apenas uma oval por linha.

	Nunca	Raramente	Ocasionalmente	Frequentemente	Muito frequentemente
Normalmente, enquanto falo com outras pessoas olho-as nos olhos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Não me sinto confortável ao falar com outras pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gosto de falar em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tento não me aproximar das pessoas enquanto falo com elas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Normalmente gesticulo com as mãos enquanto falo com outras pessoas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tremo quando tenho de fazer apresentações em público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sinto que ganho a atenção das pessoas enquanto faço apresentações	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Utilizo diferentes tons de voz enquanto falo com as pessoas, em diferentes ocasiões	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Normalmente não consigo convencer os outros de uma ideia minha	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9.2. Annex 2 - List of Portuguese students' bodies

Type of associativism	Nacional student body	Institution	Portuguese city
Students' representatives	Associação académica Açores	University of Açores	Ponta Delgada, São Miguel
	Federação académica UP	University of Porto	Porto
	Associação académica UL	University of Lisbon	Lisbon
	Associação Académica Madeira	University of Madeira	Funchal, Madeira
	AAUBI	University of Beira Interior	Covilhã
	Associação Académica UM	University of Minho	Braga
	Associação Académica UC	University of Coimbra	Coimbra
	Associação Académica Ualgarve	University of Algarve	Faro
	Ass. Jovens estudantes medicina Madeira	University of Madeira	Funchal, Madeira
	Ass. Jovens estudantes medicina AÇORES	University of Açores	Ponta Delgada, São Miguel
	Associação de Estudantes da Faculdade de Medicina de Lisboa - AEFML	University of Lisbon	Lisbon
	Associação de Estudantes da Faculdade de Ciências Médicas - AEFCM	Nova University of Lisbon	Lisbon
	Associação de Estudantes da Faculdade de Medicina da Universidade do Porto - AEFMUP	University of Porto	Porto
	Associação de Estudantes do Instituto de Ciências Biomédicas Abel Salazar - AEICBAS	University of Porto	Porto
	Associação Nacional de Estudantes de Medicina - ANEM		Nacional
	MedUBI - Núcleo de estudantes de Medicina da Universidade da Beira Interior	University of Beira Interior	Covilhã
	Núcleo de Estudantes de Medicina/ Associação Académica de Coimbra - NEM/AAC	University of Coimbra	Coimbra
	Núcleo de Estudantes de Medicina da Associação Académica da Universidade do Algarve - NEMed/AAUAlg	University of Algarve	Faro
	Núcleo de Estudantes de Medicina da	University of Minho	Braga

	Universidade do Minho - NEMUM		
Cultural	C'a Tuna aos Saltos - Tuna Médica Feminina da Universidade da Beira Interior	University of Beira Interior	Covilhã
	Tuna Académica de Biomédicas - TAB	University of Porto	Porto
	Tuna Feminina de Biomédicas - TFB	University of Porto	Porto
	Tuna Feminina de Medicina da Universidade de Coimbra - TFMUC	University of Coimbra	Coimbra
	Tuna Médica de Lisboa - TML	University of Lisbon	Lisbon
	Tuna de Medicina do Porto - TMP	University of Porto	Porto
	Tuna Médica da Universidade de Coimbra - TMUC	University of Coimbra	Coimbra
	Tuna Médica da universidade do Minho - TMUM	University of Minho	Braga
	TUFEMED - Tuna Médica Feminina da Universidade do Porto	University of Porto	Porto
	Tuna-Mus - Tuna Médica da Universidade da Beira Interior	University of Beira Interior	Covilhã
	Feminis Ferrentis - Tuna Feminina da Universidade do Algarve	University of Algarve	Faro
	Real Tuna Infantilina - Tuna Académica Mista da Universidade do Algarve	University of Algarve	Faro
	Versus Tuna - Tuna académica da Universidade do Algarve	University of Algarve	Faro
	Musa & Tuna - Tuna Académica Feminina da Universidade dos Açores	University of Açores	Ponta Delgada, São Miguel
	Tunídeos - Tuna Masculina da Universidade dos Açores	University of Açores	Ponta Delgada, São Miguel
	Tuna com Elas - Tuna Feminina da Associação Académica da Universidade dos Açores	University of Açores	Ponta Delgada, São Miguel
	Tuna Universitária do Minho	University of Minho	Braga
	Gatuna - Tuna Feminina Universitária do Minho	University of Minho	Braga
	Tun'ao Minho - Tuna Feminina Académica da Universidade do Minho	University of Minho	Braga
	Augustuna - Tuna Académica da Universidade do Minho	University of Minho	Braga
	Estudantina de Braga	University of Minho	Braga
	Estudantina Universitária de Lisboa	University of Lisbon	Lisbon
	OLISSIPPO - Tuna Mista de Lisboa	University of Lisbon	Lisbon
	TAL - Tuna Académica de Lisboa	University of Lisbon	Lisbon

	TUMa - Tuna Universitária da Madeira	University of Madeira	Funchal, Madeira
	Tuna D'Elas - Tuna Feminina da Universidade da Madeira	University of Madeira	Funchal, Madeira
	Estudantina Académica da Madeira	University of Madeira	Funchal, Madeira
	TUP - Tuna Universitária do Porto	University of Porto	Porto
	TDUP - Tuna do Distrito Universitário do Porto	University of Porto	Porto
	Tuna Feminina do Distrito Universitário do Porto	University of Porto	Porto
	Mondeguinas - Tuna Feminina da Universidade de Coimbra	University of Coimbra	Coimbra
	As FANS - Tuna Feminina da Universidade de Coimbra	University of Coimbra	Coimbra
	Estudantina Universitária de Coimbra	University of Coimbra	Coimbra
	Grupo de dança do Instituto de Ciências Biomédicas Abel Salazar	University of Porto	Porto
	Grupo de Teatro Catarse	University of Lisbon	Lisbon
	Grupo de teatro Miguel Torga	Nova University of Lisbon	Lisbon
Sports	Desporto - FMUL	University of Lisbon	Lisbon
	Desporto - Ualgarve	University of Algarve	Faro
	Desporto - UNL	Nova University of Lisbon	Lisbon
	Desporto - AAUBI	University of Beira Interior	Covilhã
	Desporto - FMUP	University of Porto	Porto
	Desporto - UP	University of Porto	Porto
	Desporto - UC	University of Coimbra	Coimbra
Musical	Coral do Instituto de Ciências Biomédicas Abel Salazar	University of Porto	Porto
	Coro e Orquestra Médicos de Lisboa	University of Lisbon	Lisbon
	Grupo de fados de medicina do Porto	University of Porto	Porto
	Grupo de fados de Coimbra	University of Coimbra	Coimbra

9.3. Annex 3 - Physicians responses to the question “what milestone do you consider to have left on your respective/s associative/s group/s?”

“what milestone do you consider to have left on your respective/s associative/s group/s?”
1. Associative group growth
2. Academic Tuna foundation
3. reinforcement of teamwork and respect for colleagues
4. I have always tried to be considerate and to contribute to making group decisions valid and not compromising the future.
5. foundation of the mixed Tuna of University of Minho
6. Make Minho Medical Meeting a 3-day (instead of 2) congress and with international speakers.
7. I was able to get more school textbooks
8. Have initiated and energized some community support interventions by college students
9. Several projects and initiatives developed that have gone well or badly have led to important decisions for the next mandates. Anyone who dedicates leaves the milestone in the institutions wherever he goes.
10. I improved image and communication
11. I created new activities, increased internationalization and turned some amateur activities to professional
12. Improvement of financial conditions; Improvement of the group's external relations; Improvement of public awareness of the activities carried out.

9.4. Annex 4 - “Self-perception” descriptive statistics tables

Table 9- Resume of relative frequencies of physicians’ answers to “Self-perception” (as students) questions

		1	2	3	
As student	I liked better working with a team than alone	G1	.16	.208	.632
		G2	.189	.284	.527
		G1b	.075	.164	.761
		G1nb	.259	.259	.483
	I felt confident working alone	G1	.072	.224	.708
		G2	.054	.284	.662
		G1b	.060	.179	.761
		G1nb	.086	.276	.638
	I felt confident in group works	G1	.016	.144	.84
		G2	.041	.257	.703
		G1b	0	.104	.896
		G1nb	.034	.170	.776
	I felt calm when talking in public	G1	.224	.28	.496
		G2	.392	.297	.311
		G1b	.14.9	.328	.522
		G1nb	.310	.224	.466
	I could resolve problems when I tried hard enough	G1	0	.032	.968
		G2	.014	.054	.932
		G1b	0	.015	.985
		G1nb	0	.052	.948
I was calm when facing an adversity	G1	.064	.168	.768	
	G2	.0676	.311	.622	
	G1b	.045	.149	.806	
	G1nb	.086	.190	.724	
I could make people do what I wanted	G1	.072	.328	.6	
	G2	.041	.568	.392	
	G1b	.030	.269	.701	
	G1nb	.121	.397	.483	
I felt anxious when there was struggles in my tasks	G1	.28	.472	.248	
	G2	.135	.486	.378	
	G1b	.328	.463	.209	
	G1nb	.224	.483	.293	
I felt capable of facing efficiently adversities	G1	.024	.232	.744	
	G2	.014	.270	.716	
	G1b	.015	.134	.851	
	G1nb	.034	.345	.621	
On teamwork’s I was chosen to be the leader	G1	.24	.32	.44	
	G2	.297	.365	.338	
	G1b	.194	.313	.493	
	G1nb	.293	.328	.379	
On teamwork’s I offered myself to be the leader	G1	.472	.368	.16	
	G2	.622	.243	.135	
	G1b	.358	.418	.224	
	G1nb	.603	.310	.086	
I liked to standout in any work	G1	.424	.344	.232	
	G2	.446	.324	.230	
	G1b	.358	.403	.239	
	G1nb	.5	.276	.224	

Never/rarely; 2- Occasionally; 3- Frequently/very frequently)

Table 9.1- Resume of relative frequencies of physicians' answers to "Self-perception" questions

		1	2	3	
As physician	I like to work as a team	G1	0	.088	.912
		G2	.027	.068	.905
		G1b	0	.045	.955
		G1nb	0	.138	.862
	I feel confident working alone	G1	.056	.288	.656
		G2	.041	.284	.676
		G1b	.060	.269	.672
		G1nb	.052	.31	.638
	I feel confident in group works	G1	0	.04	.96
		G2	0	.054	.949
		G1b	0	.030	.97
		G1nb	0	.052	.948
	I feel calm when talking in public	G1	.136	.264	.6
		G2	.270	.284	.446
		G1b	.104	.313	.582
		G1nb	.172	.207	.621
	I can't resolve problems even if I try hard enough	G1	.928	.064	.008
		G2	.838	.122	.041
		G1b	.91	.090	0
		G1nb	.948	.034	.017
I am calm when facing an adversity	G1	.04	.184	.776	
	G2	.095	.27	.635	
	G1b	.030	.164	.806	
	G1nb	.052	.207	.741	
I can make people do what I want	G1	.112	.392	.496	
	G2	.081	.554	.365	
	G1b	.045	.463	.493	
	G1nb	.190	.31	.5	
I feel anxious when there's struggles in my tasks	G1	.288	.408	.304	
	G2	.149	.608	.243	
	G1b	.269	.418	.313	
	G1nb	.31	.397	.293	
I feel capable of facing efficiently adversities	G1	.032	.208	.76	
	G2	0	.243	.757	
	G1b	0	.239	.761	
	G1nb	.069	.172	.759	
On teamwork's I am chosen to be the leader	G1	.296	.392	.312	
	G2	.405	.351	.243	
	G1b	.254	.433	.313	
	G1nb	.345	.345	.310	
On teamwork's I offer myself to be the leader	G1	.424	.392	.184	
	G2	.635	.230	.135	
	G1b	.403	.418	.180	
	G1nb	.448	.362	.190	
I like to standout in any work	G1	.304	.344	.352	
	G2	.392	.297	.311	
	G1b	.284	.328	.388	
	G1nb	.328	.360	.31	

			1	2	3
As physician	I feel confident leading a team	G1	.176	.336	.488
		G2	.243	.432	.324
		G1b	.090	.343	.567
		G1nb	.276	.328	.397
	I feel my team trusts me	G1	.008	.16	.832
		G2	.041	.162	.797
		G1b	0	.149	.851
		G1nb	.017	.172	.84
	I feel my team trusts me as a leader	G1	.096	.208	.696
		G2	.149	.324	.527
		G1b	.045	.224	.731
		G1nb	.155	.190	.655

(1- Never/rarely; 2- Occasionally; 3- Frequently/very frequently)

9.5. Annex 5 - “Motivational language” descriptive statistics tables

Table 10- Resume of relative frequencies of physicians’ answers to “Motivational language” (as students) questions

			1	2	3
As student	I motivated my team colleagues	G1	.016	.144	.84
		G2	.054	.216	.730
		G1b	0	.119	.881
		G1nb	.034	.172	.793
	I tried to solve problems of my team	G1	0	.056	.944
		G2	.014	.122	.865
		G1b	0	.045	.955
		G1nb	0	.069	.931
	Usually, my team did not listen to my suggestions	G1	.832	.012	.048
		G2	.797	.149	.054
		G1b	.866	.134	0
		G1nb	.793	.103	.103
	I payed attention to what my team said	G1	0	.04	.96
		G2	.014	.041	.946
		G1b	0	.045	.955
		G1nb	0	.034	.966

Table 10.1- Resume of relative frequencies of physicians' answers to "Motivational language" questions

		1	2	3	
As physician	I'm a motivator element in a team	G1	.024	.184	.792
		G2	.027	.284	.689
		G1b	.015	.209	.776
		G1nb	.034	.155	.81
	I try to solve problems of my team	G1	.008	.072	.92
		G2	.014	.108	.878
		G1b	0	.090	.91
		G1nb	.014	.052	.931
	Usually, my team listen to my suggestions	G1	.064	.128	.808
		G2	.041	.176	.784
		G1b	.045	.149	.806
		G1nb	.086	.103	.81
	Usually I don't pay attention to what my team say	G1	.944	.016	.04
		G2	.905	.054	.041
		G1b	.94	.015	.045
		G1nb	.948	.017	.034
	My team understand easily my instructions	G1	.016	.208	.776
		G2	.014	.230	.757
		G1b	.015	.164	.821
		G1nb	.017	.259	.724

9.6. Annex 6 - “Communication” descriptive statistics tables

Table 11 - Resume of relative frequencies of physicians’ answers to “Communication” (as students) questions

		1	2	3	
As student	Usually, I did not look people in the eyes	G1	.8	.152	.048
		G2	.77	.189	.041
		G1b	.791	.179	.030
		G1nb	.81	.121	.069
	I liked to speak in public	G1	.272	.32	.408
		G2	.5	.338	.162
		G1b	.209	.373	.418
		G1nb	.345	.259	.397
	I didn’t feel comfortable when talking with people	G1	.736	.2	.064
		G2	.81	.135	.054
		G1b	.821	.134	.045
		G1nb	.638	.276	.086
	I approached people when I wanted to talk to them	G1	.032	.128	.84
		G2	.014	.189	.797
		G1b	.015	.119	.866
		G1nb	.051	.138	.81
	I waved my hands when I talked to people	G1	.088	.248	.664
		G2	.176	.365	.459
		G1b	.075	.254	.672
G1nb		.103	.241	.655	
I trembled when speaking in public	G1	.432	.312	.256	
	G2	.446	.324	.230	
	G1b	.493	.269	.239	
	G1nb	.362	.362	.276	
I often lost people attention when presenting	G1	.816	.136	.048	
	G2	.716	.216	.068	
	G1b	.821	.119	.060	
	G1nb	.81	.155	.04	
I used different voice tones with people in different occasions	G1	.088	.248	.664	
	G2	.068	.230	.703	
	G1b	.090	.194	.716	
	G1nb	.086	.31	.603	
I felt I could easily convinced my colleagues of an idea of mine	G1	.056	.432	.512	
	G2	.081	.419	.5	
	G1b	.015	.403	.582	
	G1nb	.103	.466	.431	

Table 11.1 - Resume of relative frequencies of physicians' answers to "Motivational language" questions

		1	2	3	
As physician	Usually, I look people in the eyes when talking to them	G1	.008	.04	.952
		G2	.027	.068	.905
		G1b	0	.015	.985
		G1nb	.017	.069	.914
	I like to speak in public	G1	.792	.2	.008
		G2	.77	.216	.014
		G1b	.791	.194	.015
		G1nb	.793	.207	0
	I don't feel comfortable when talking to people	G1	.232	.312	.456
		G2	.365	.419	.216
		G1b	.194	.358	.447
		G1nb	.276	.259	.466
I don't approach people when I want to talk to them	G1	.864	.088	.048	
	G2	.811	.122	.068	
	G1b	.851	.104	.045	
	G1nb	.879	.069	.052	
I wave my hands when I talk to people	G1	.112	.224	.664	
	G2	.203	.27	.527	
	G1b	.119	.224	.657	
	G1nb	.103	.224	.672	
I tremble when speaking in public	G1	.552	.272	.176	
	G2	.514	.324	.162	
	G1b	.567	.284	.149	
	G1nb	.534	.259	.207	
I gain people attention when presenting	G1	.032	.176	.792	
	G2	.014	.257	.730	
	G1b	.015	.179	.806	
	G1nb	.052	.172	.776	
I use different voice tones with people in different occasions	G1	.072	.128	.8	
	G2	.054	.203	.743	
	G1b	.090	.104	.806	
	G1nb	.052	.155	.793	
I can easily convince my colleagues of an idea of mine	G1	.704	.232	.064	
	G2	.662	.297	.041	
	G1b	.731	.209	.060	
	G1nb	.672	.259	.069	

9.7. Annex 7 - Ethics committee questionnaire validation

Parecer relativo ao processo n.º CE-UBI-Pj-2018-014

Na sua reunião de 13 de março de 2018 a Comissão de Ética apreciou, retrospectivamente, a documentação científica submetida referente ao pedido de parecer do projeto "**Healthcare leadership development through associativism participation**" da proponente **Vera Alexandra Vaz Teixeira**, a que atribuiu o código n.º CE-UBI-Pj-2018-014.

Na sua análise não identificou matéria que ofenda os princípios éticos e morais sendo de parecer que o estudo em causa pode ser aprovado.

Covilhã e UBI, 19 de abril de 2018

O Presidente da Comissão de Ética



Professor Doutor José António Martinez Souto de Oliveira

Professor Catedrático

