

Impact of participation in university bands on mental health and development of Medical students

Impacto da participação em baterias universitárias na saúde mental e desenvolvimento de acadêmicos de Medicina

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ABSTRACT

Introduction: Medical students are frequently exposed to high levels of stress, which can compromise their mental health and academic performance. Extracurricular activities, such as participation in university bands have emerged as potential psychosocial support strategies yet remain underexplored in academic research.

Objective: This study aims to understand the personal and academic impact of participation in university percussion bands among medical students.

Method: This is a qualitative study based on data collected through an electronic form containing five open-ended questions, answered by 30 current and former medical students who took part in the university band. Thematic content analysis was used to identify key topics and subtopics emerging from the participants' responses.

Results: Participation in university bands promoted social integration, a sense of belonging, the development of interpersonal skills, and stress relief, being frequently associated with improved mental health. Additionally, participants reported positive academic impacts, such as increased focus and motivation, and professional development, particularly in communication, empathy, and the ability to deal with adversity.

Conclusion: University bands represent spaces of emotional support, meaningful learning, and holistic development, with positive effects on students' academic and professional trajectories. Encouraging such activities may contribute to the well-being and training of more humane, resilient, and prepared physicians.

Keywords: Medical education; Mental health; Academic performance; Music.

RESUMO

Introdução: Os estudantes de Medicina estão frequentemente expostos a altos níveis de estresse, o que pode comprometer a saúde mental e o desempenho acadêmico deles. Atividades extracurriculares, como a participação em baterias universitárias, têm se mostrado potenciais estratégias de apoio psicossocial, mas ainda são pouco exploradas academicamente.

Objetivo: Este estudo tem como objetivo compreender o impacto pessoal e acadêmico da participação em baterias universitárias por estudantes de Medicina.

Método: Trata-se de uma pesquisa qualitativa, com coleta de dados por meio de formulário eletrônico contendo cinco questões abertas, respondido por 30 estudantes e egressos do curso de Medicina que participaram da bateria universitária. A análise seguiu os princípios da análise temática de conteúdo, identificando os principais temas e subtemas emergentes das respostas.

Resultado: A participação nas baterias universitárias promoveu integração social, sentimento de pertencimento, desenvolvimento de habilidades interpessoais e alívio do estresse, sendo frequentemente associada à melhora da saúde mental. Além disso, os participantes relataram impactos positivos no desempenho acadêmico, como maior foco e motivação, e no desenvolvimento profissional, especialmente no aprimoramento da comunicação, empatia e capacidade de lidar com adversidades.

Conclusão: As baterias universitárias representam um espaço de apoio emocional, aprendizado significativo e crescimento integral, com efeitos positivos sobre a trajetória acadêmica e profissional dos estudantes. O incentivo a tais atividades pode contribuir para o bem-estar e a formação de médicos mais humanos, resilientes e preparados para os desafios da prática.

Palavras-chave: Educação Médica; Saúde Mental; Desempenho Acadêmico; Música.

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Chief Editor: Rosiane Viana Zuza Diniz
Associate Editor: Agnes Cruvinel

Received on 08/25/24; Accepted on 07/11/25.

Evaluated by double blind review process.

INTRODUCTION

Medical students face unique challenges throughout their academic career, including an intense workload, constant pressure and exposure to emotionally challenging situations, high performance expectations^{1,2}. Advancing in the course often aggravates these stressors due to the increased responsibilities and emotional demands of patient care, reflected in the higher prevalence of burnout during this period³⁻⁵.

In Brazil, medical students have worse scores on psychological and social criteria compared to the young population in general⁶, with similar results found in other parts of the world⁷⁻⁹. In Spain, for example, a study shows that 37% of medical students have Burnout, a prevalence higher than that of the general population¹⁰. Medical students' feeling of exhaustion was associated with lower academic performance, increased rates of impaired mental health¹¹. This association directly interferes with the professional future of these students and the conditions for quality patient care¹². Studies suggest that this fact can also affect medical students' empathy¹³, impairing the ability to understand the patient, communicate this understanding and act in a therapeutic way^{14,15}.

Since the publication of the National Curriculum Guidelines for the Medicine course in 2014¹⁶, the training of general practitioners has started to consider sociocultural, humanistic and biological aspects in an interdisciplinary and multiprofessional way¹⁷. In this context, assessing the students' well-being is essential to guide academic policies that improve their mental health¹⁸, facilitating the development of interpersonal skills, which are important for their education and professional performance^{19,20}.

Additionally, the adoption of active teaching methodologies in medical schools aims to encourage students to actively participate in the search for knowledge²¹. This engagement is also observed in the participation of students in extracurricular projects and activities, which in turn promote the development of attitudes of individual commitment and collective engagement. This is important, as involvement in these activities, characterized by taking place under the sponsorship of the educational institution, although outside the formal curriculum, can impact both academic performance and the development of interpersonal skills and competencies.

Studies also show that artistic involvement during medical training has the potential to develop interpersonal skills, showing important results in health care, both for the physician and for the patient²²⁻²⁴. In this context, we can consider the role of university bands, which, although they emerged only for leisure, fun and academic competition, offer an accessible form of artistic contact for students²⁵. However, as much as the first university band, which is recorded, dates

from the year 1969²⁵, little research has been done on the impact of these activities on the mental health or academic development of students.

The benefit of seeking strategies, complementary to the academic curriculum in the medical field, for the development of certain skills is evident. Therefore, this study seeks to understand the effects of participation in university bands on the mental health, personal, academic and professional development of medical students at Pontifícia Universidade Católica de Minas Gerais (PUC Minas), Poços de Caldas Campus.

METHODS

This is a qualitative research²⁶, whose sample comprises students and graduates of the medical course at PUC Minas, Poços de Caldas campus, who participated in the university band activity during their academic training. Semi-structured open questions were asked, with answers collected through a self-completed electronic form²⁷. The form contained five open questions that dealt with issues related to participation in the band, such as the initial motivation, the barriers, the impact on academic and personal life, and the meanings of this participation.

The form could be accessed and filled out through a link, sent to participants through the WhatsApp application. Those who did not respond to a first contact were invited a second time through the same application. Those who agreed to participate had to read and give their consent to the free and informed consent forms before having access to the questions. The form was sent to 50 people from the band, and spontaneous and voluntary participation resulted in a sample of 30 participants²⁸.

Based on the recommendations of Braun and Clark^{29,30}, the answers to the open questions were read several times and individually coded. Two researchers initially generated codes and, after discussion, defined themes and subthemes, developing analytical connections for thematic content analysis. The results will be presented in the 5 themes proposed in the questions: Motivation to Participate in the University Band Activity, Impact on Personal and Academic Life, Attribution of meaning to participation, Barriers to participation and Additional Comments.

The study was approved by the Research Ethics Committee (CEP) of the Pontifícia Universidade Católica de Minas Gerais - PUCMG under CAAE number 79192224.6.0000.5137.

RESULTS

The participants had a mean age of 24 years, with a minimum age of 18 years and a maximum of 31 years, and the majority were female. The sample included students from

the first to the last semesters of the course and people who had already graduated. The time of participation in the band ranged from 3 to 72 months, with an average of 34 months of participation. The characteristics of the participants can be better observed in Table 1 below:

Table 2 below depicts the main themes and subthemes that emerged from the content analysis, allowing a general understanding of the most addressed subjects.

Motivation to Participate in the University Band Activity

The question revealed two predominant subthemes: artistic and musical interest, and socialization and a sense of belonging. In addition, the search for mental health and stress relief was also identified. The main motivation cited by the students to join a university band is directly linked to artistic and musical interest, with reports that express an admiration for music, samba and percussion instruments. Often, these influences come from previous experiences, such as band performances at events, entrance exams or workshops, which awakened a latent desire for musical practice.

For example, students reported being moved by pre-university entrance exam presentations, as described in: “When I was taking the entrance exams, I was very moved watching the pre-test band presentations and that gave me a huge boost”. Others mentioned having a family history linked to samba, as evidenced in the quote: “All my life I listened to samba, much because of the influence of my parents who like it very much”. These students sought in the band an opportunity to experience these feelings. In addition, some sought to learn a new instrument, develop musical skills or explore music theory

Table 1. Characteristics of the study participants.

Characteristics	n	%
Age		
18-20 years	3	10%
21-23 years	13	43%
24-26 years	10	33%
27-31 years	4	13%
Sex		
Female	19	63%
Male	11	37%
Current semester*		
1 st -4 th	4	13%
5 th -8 th	14	47%
9 th -12 th	6	20%
Graduates	6	20%
Entry semester		
1 st -4 th	13	43%
3 th -4 th	12	40%
5 th -12 th	5	17%
Participation time		
Up to 11 months	3	10%
12-23 months	6	20%
24-47 months	12	40%
48-72 months	9	30%
Total number of participants	30	

* Undergraduate semester the participant was enrolled in when they responded.
Source: Prepared by the authors.

Table 2. Themes, subthemes, and examples of the research.

Themes	Subthemes	Example
Motivation to Participate in the University Band Activity	Artistic and musical interest	“I was interested in having more contact with music and learning a new instrument”
	Socialization and sense of belonging	“A family feeling I observed that the members had with each other.”
Impact on Personal and Academic Life	Socialization, integration, belonging and friendship	“It had a big impact on my life, as it gave me a sense of belonging.”
	Mental health and stress relief	“The band came into my life at a time when I was very depressed, thinking about committing suicide. The band was a first push in the opposite direction, it gave me the will to live again.”
Attribution of Meaning to Participation	Bonding, sense of belonging and unity	“[...] it means having a family with whom to share the best moments of college.”
	Refuge and support for mental health	“The group’s achievements are a source of personal fulfillment, capable of alleviating the negative feelings we sometimes experience throughout the course. It’s also a reason to stay in the course; there are people there who will encourage, support, and help you whenever they can. Above all, it’s an extremely important source of comfort for any student’s mental health.”

Continua...

Table 2. Continuation.

Themes	Subthemes	Example
Barriers to Participation	Absence of barriers	"There were no barriers."
	Availability of time	"I was afraid I wouldn't be able to manage my time with the other college activities."
Additional Comments	Experiences and moments lived within the band	"They are several feelings, moments of joy, sadness, frustrations, achievements and many other experiences lived."
	Impact these experiences have outside the band	"It certainly wouldn't be the same course if it weren't for my participation in the band. I feel like I'm becoming a better professional, even because I acquired the natural ability to communicate with people and transmit and capture feelings."

Source: Prepared by the authors.

in practice, as exemplified in: "I was interested in having greater contact with music and learning some new instrument".

In addition to musical interest, the participants revealed a strong motivation related to socialization, integration and a sense of belonging. Many highlighted the opportunity to meet new people, establish friendships, and integrate into a cohesive and welcoming group. This is illustrated in statements such as: "Feeling of family that observed that the members had with each other". Interaction with colleagues from different courses and semesters is often mentioned as a motivating factor, as in the quote: "Before joining, I heard a lot about this, in which you have contact with several people, totally different from you", promoting integration between different people who probably would not know each other in other contexts. This integration proved especially significant for those who started university life during the pandemic or who moved away from their families, seeking a new social circle.

Impact on Personal and Academic Life

All the interviewed students reported that participating in a university band had a positive influence on their personal or academic lives. The reports covered several sub-themes, including: development of skills to overcome personal barriers and adversities, improvement of musical and motor skills, interaction with people at different stages of the course, improvements in interpersonal skills, performance and focus on other activities, in addition to strengthening responsibility and commitment. However, we will highlight two predominant ones: the benefits related to socialization, integration, belonging, and friendship, as well as improved mental health and stress relief. The participants highlighted an intense sense of belonging and integration, which fostered lasting friendships and a mutually supportive environment. Some testimonies exemplify this positive influence: "It impacted my life a lot, as it gave me a sense of belonging", while another participant said: "It impacted my personal life, because I made friends that, if it weren't for the band, I wouldn't have".

Many emphasized that these moments of socialization were fundamental to deal with the frustrations and challenges of academic life and with the college itself, as expressed in reports such as: "I was able to feel more integrated into the college environment", in addition to:

"Until this year (2024), I thought about transferring to another college, because I didn't feel part of anything. This was the period I gave it a chance; If it didn't improve, I would transfer in the middle of the year. The band played an important role in my decision to stay, because I felt more welcomed and was able to meet new people."

Participants reported finding love, support, and motivation in this group, not only forming new bonds in terms of quantity, but also in terms of intensity. As one student described it, "I think getting into the band was getting to be part of a family in another city." These experiences enhanced their academic journeys and continued to impact them even after graduation, as evidenced by testimonials such as: "I met people I wouldn't have met outside of the band, I created lifelong bonds and friendships."

Many reported that the rehearsals provided a space for distraction and leisure, allowing them to disconnect from academic and everyday pressures, which resulted in a reduction in stress and mental overload. As some participants stated: "Being able to distract from the college environment was also important, because on several days when I was discouraged or stressed, the rehearsals helped me to go through these moments in a better way", "Rehearsals are a moment of distraction, of leisure, which helps me a lot to take off the weight of the week", and "On days when I am not well and I go to rehearsal, I feel relieved. It's really a moment of lightness and clearing the mind."

Many stated that participating in the band significantly improved their mental health by offering a safe and welcoming environment, as described by one student: "It was built as a place of comfort and welcoming. Rehearsals are like therapy

and being there means forgetting all the problems.” And another wrote: “The University Band was my safe haven during college. It was the place where I naturally went when I was on my worst days during the course. You could say that the UB was my therapy. It was the place where I was able to forget about my many problems.”

In this sense, the interaction with the band was often compared to therapy by many participants, as evidenced by comments such as: “The band was therapy, it was a safety space, it was a place to breathe at all times”, and another said: “I always say that the band is my private therapy, because even if I have many assignments and exams to study for, the band is the time I take to enjoy, to forget a little about the problems”. For some, participation had a particularly significant impact, directly helping to overcome feelings such as depression and anxiety, as described by one student: “The band came into my life at a time when I was very depressed, thinking about suicide. The band was a push into the opposite direction, it made me want to live again,” and another mentioned, “Since I started, I’ve felt a significant improvement in anxiety,” as well as “It helped me a lot during a difficult phase of my life.”

Assigning meaning to participation

The participants’ answers revealed two predominant subthemes, which outline the meaning of being part of a university band: an environment for bonding, a sense of belonging and togetherness; and an environment of refuge and mental health support. Others include a space for self-knowledge, an opportunity for personal growth, artistic development, a platform to represent the institution and experience moments of leisure and relaxation.

The meaning of being part of a university band is described as creating bonds, promoting integration, a sense of belonging and unity. This is evidenced in quotes as “a place where we can create new bonds”. Many describe this feeling as being part of a family, as expressed in “being part of it is almost like being part of a second family” and “it means having a family with whom to share the best moments of college.” This welcoming environment favors the creation of deep bonds, highlighting companionship and mutual support, as perceived in “belonging to a family that places itself as a place of support, security and trust”. The band promotes integration between people from different stages of the course, something not easily found in other situations, as evidenced in “it ends up creating a very good bond, an integration between freshmen and seniors that other college environments do not provide so much”.

In addition, participating in a university band was presented as a place to share moments, face challenges and celebrate collective achievements, which reinforce the group’s

unity, as noted in “it means the unique blending of people for the same very beautiful purpose”. Many participants define that being part of a university band represents a sense of security, trust and happiness between very different people, but who discover common interests, as observed in “belonging is the word that defines being part of a UB, in fact being part of my UB is that and everyone should be like this” and “band for me is family. It’s being part of a group with very different people, but who have a love for music as a common point”.

Many consider the band an essential part of academic life, providing a space for self-knowledge and relief from academic challenges, as mentioned: “giving meaning to some things and, above all, learning to share the weight of college” and “an escape from stressful academic life”. This becomes particularly relevant for medical students, who face a demanding course, as noted in “they can relieve the stress of everyday life in medicine”. For some, the band is seen as a second family, an environment of commitment and mutual support, reflected in “having a support away from home”, especially on difficult days, as exemplified in “it’s really an escape on bad days”.

This escape from academic stress, the achievements provided by the band and the generated environment are reported as helping to mitigate negative feelings and contributing to the permanence in the course, as reported in:

“The group’s achievements are a source of personal achievement, capable of mitigating negative feelings that we sometimes have throughout the course. It is also a reason to help you stay in the course, there are people there who will encourage you, support you and help you whenever they can. It is, above all, an extremely important source of comfort for the mental health of any student”.

These characteristics are presented as a tool for maintaining the mental health of students, as described: “it means working on my personal mental health”.

Barriers to participation

Two predominant subthemes were identified and analyzed in the answers about barriers faced by students when trying to join the university band: absence of barriers and challenges related to time availability. In addition, two other nuclei were identified: insecurity and fear of not being able to learn, and criticism and disapproval by parents and friends.

Most participants who identified barriers reported facing challenges related to schedules and time availability, often conflicting with other activities. Many rhythmists are not from the city where they study, and the schedule of rehearsals, especially on Sundays, constituted a common barrier, especially

for those who usually visited their hometowns or have family commitments. This is evidenced in the statement:

"They existed, especially the rehearsal schedules, especially for those who live in other cities and have the habit of returning home on free weekends, having to return home earlier, by bus, missing the rides to be on rehearsal time, I believe that was the biggest barrier".

The concern with the extensive curriculum of a medical course and the difficulty of reconciling the rehearsals with other academic and extracurricular activities was also mentioned: "I was afraid of not being able to allocate the time with the activities of the college". Choosing between participating in the band and enjoying the weekend without commitments was a challenge for some, but the dedication to the band prevailed, as reflected in the statement: "But the truth is that I always prioritized the band, so these barriers were no reason to keep me out of the band". However, some members had to temporarily leave the band due to commitments, as noted in: "As rehearsals began to be on Sundays, I could not reconcile both things".

A significant part of the participants reported that they did not encounter barriers to their participation in the university band. The answers indicate that the process was fluid and unhindered. Many said, "there were no barriers" or variants such as "none", "there weren't any barriers" and "it was all very fluid".

Additional Comments

The space in the form for additional, non-mandatory comments on participation in the university band revealed a variety of aspects; however, two main subthemes emerged: the experiences and moments lived within the band, and the impact that these experiences have outside it. Other subthemes that emerged include the absence of additional comments, emotional learning, the faced challenges and rewards, the perception of the importance of the band even for those who do not participate directly, and the desire for greater participation. Few participants indicated that they did not have additional comments.

The most recurrent type of additional comment about participating in the university band was related to the expression of experiences, moments and extraordinary feelings experienced. In one of the reports, the participant wrote that "They were the best years of my life", highlighting the impact and depth of the experience. Other participants reported difficulty expressing everything they would like to express regarding the participation in the band, mentioning that they were impacted in ways they never imagined, as in "When I joined the band I had no idea how well it would make me feel". Many participants still express gratitude, as we see in "I owe all

my personal transformation to the band and the rhythmists who were part of it" and "I am very grateful for having joined the band and sometimes I regret a little not having joined earlier. I really feel very good!!".

The band represented for many more than an extracurricular activity, as seen in "There are several feelings, moments, experiences, joys, sorrows, frustrations, overcoming and several other incredible experiences that helped shape me and change my life", creating unforgettable memories, strengthening the bonds and transforming the lives of its members, as exemplified by the following report: "The band gave me several of the best moments I experienced in college". In some reports, it was also possible to observe the involvement in intense emotional experiences: "I'm a DJ and I've never cried playing a set, I'm a goalkeeper and I've never cried in a championship or game, but I'm a rhythmist and I've cried in all the performances I've ever performed and I really can't explain why I always break down". The answers highlighted the significant impact of participating in the university band on the students' lives, providing a broader view of people and medicine itself, playing a crucial role in the training of practical skills transferable to professional life, as seen in the statements of participants who have already graduated about their own medical practice: "it was a fundamental part of my academic life, and continues to be even after graduation" and

"It certainly wouldn't be the same graduation if it weren't for my participation in the band, I feel that I've become a better professional, even by acquiring there the naturalness of communicating with people and transmitting and capturing feelings".

For some, the university band was a crucial point in deciding where to attend college, as illustrated in:

"I chose PUC Minas because I knew there was a band in it. The existence of a UB was an important criterion for me: I never wanted to be away from music for 6 years and, thank God, that didn't happen. (...) Today I feel much more capable of having autonomy in my professional life, I am able to deal with the organization of my professional day-to-day thanks to the teachings I learned during the band."

DISCUSSION

The motivations for joining a university band are diverse and reflect the different needs, interests, and expectations of students. Artistic and musical interest was the main reason, often driven by previous experiences and the desire to develop musical skills. The search for socialization, integration and a sense of belonging highlights the importance of human connections and the creation of a welcoming community, compatible with the findings of other studies involving

university students^{31,32}. These joint motivations demonstrate the positive impact expected by freshmen, by providing a space for artistic expression and a significant emotional and social refuge, which in fact has been observed with a positive effect in previous studies^{33,34}.

The analysis of the participants' reports indicated that participation in a university band can go beyond simple involvement in musical activities. It is a transformative experience that significantly impacts mental health, the development of skills, and the construction of solid interpersonal relationships. Moreover, the reported contributions of improved mental health and stress relief highlight the therapeutic potential of this activity, and of contact with the arts, in the lives of students³⁵⁻³⁷.

The university band emerges as an environment of welcome and integration, where students find a safe space to express themselves, learn and grow. This has been shown to enhance academic experiences and provide valuable tools for students' personal lives and future professional performance²²⁻²⁴. Additionally, these experiences can contribute to the consolidation of theories and concepts learned academically, promoting something defined as "meaningful learning" in the field of health³⁸, and promoting debates about care itself³⁹. Thus, the impact on learning can vary according to the experiences, opportunities, and individual interpretations of each student during this activity.

The findings on the meaning coincide with the reports on the impacts observed by the participants, highlighting the importance of this environment as a space for the creation of bonds and integration, as well as support for mental health. This experience contributes significantly to the development of skills and sensibilities essential for a more effective and humanized medical practice, creating an environment where emotions, creativity and personal development are experienced and expressed⁴⁰. The relationship between physician and patient is an example of potential impact, as it is directly related to the physician's interpersonal skills and empathy generated in consultations, resulting in better psychological and physical outcomes for the patient⁴¹⁻⁴³.

The study revealed a diversity of experiences among students in relation to the barriers to participating in the university band. While many did not encounter obstacles, others faced challenges related to time management, conflicts with other activities, insecurity about their ability to learn a new instrument and external criticism. Therefore, it is important to highlight that institutional and family support can be crucial for the appropriate development of extracurricular activities, since, as seen in previous studies, this support has a positive impact on the education and academic performance of medical

students⁴⁴. Despite the pointed out barriers, the students' determination to be part of the band often prevailed.

The intensity of the moments shared by the participants and the skill acquired in dealing with feelings and pressures show that the band is an essential tool for emotional development, crucial for medical practice⁴⁵. Even facing challenges, the benefits and gratification of being part of this group are remarkable. In addition, bands transcend their musical function, positively affecting everyone around them, reflecting their power to unite and inspire even those who do not directly participate in them.

FINAL CONSIDERATIONS

This study highlights the depth and diversity of the experiences lived by medical students in the context of university bands, evidencing the relevance of these activities in the academic environment. Institutional and family support is also essential, as it can turn challenges into opportunities. Addressing difficulties and providing appropriate support can create a more inclusive and encouraging environment for participation in extracurricular activities, benefiting both the students' individual development and the university as a whole.

The continuity and recognition of university bands are essential to ensure that these positive experiences are perpetuated, benefiting the entire academic community. Thus, the university band is consolidated as a fundamental pillar in supporting the integral development of students, promoting students' well-being, integration and personal growth, and its use as a tool in medical training should be encouraged.

There were no difficulties in carrying out the questionnaires, exceeding the researchers' expectations regarding the wealth of content, diversity of perception and length of the answers. It is noteworthy that the research participants were those who were willing to fill out the questionnaire, which could represent a bias. However, this fact cannot be confirmed nor does it indicate a relationship that invalidates the proposed analyses.

Finally, the findings of this study may provide valuable insights for the implementation of policies and programs to support the extracurricular activities of university students, aiming to promote their psychological well-being and improve their academic performance. Scientific production on the impact of other extracurricular activities on students should be stimulated, including those involving students from other undergraduate courses. Although we recognize limitations of the study, such as the number of participants and the fact that it is an undergraduate course and a specific institution, we believe that the results obtained will be of

great relevance to encourage the production of other studies and the development of extracurricular activity projects.

AUTHORS' CONTRIBUTIONS

Guilherme Frayha Delany was responsible for data collection, analysis, manuscript drafting, and review. Lucas Tadeu Garcia provided guidance and review.

CONFLICTS OF INTEREST

Guilherme Frayha Delany was the creator of the university band that generated the research sample.

SOURCES OF FUNDING

The authors declare no sources of funding.

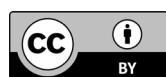
DATA AVAILABILITY STATEMENT

Research data are only available upon request.

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