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Corpo Editorial

Propriedade: Ordem dos Médicos (NIPC 500 984 492)

Sede do Editor / Redação: Av. Almirante Gago Coutinho, 151. 1749-084 Lisboa, Portugal. Tel: +351 21 151 71 00 E-mail: secretariado@actamedicaportuguesa.com

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Conselho Científico

ACTA MÉDICA PORTUGUESA
A Revista Científica da Ordem dos Médicos

Para que Serve o Índex das Revistas Médicas Portuguesas?

What is the Purpose of *Índex das Revistas Médicas Portuguesas*?

Jorge CRESPO[1,2]
Acta Med Port 2025 Mar;38(3):135-136 ▪ https://doi.org/10.20344/amp.22587

Palavras-chave: Bases de Dados Bibliográficas; Portugal
Keywords: Databases, Bibliographic; Portugal

INTRODUÇÃO

O Índex das Revistas Médicas Portuguesas (Índex RMP) é uma base de dados bibliográfica, já com mais de 30 anos de existência (desde 1992), que inclui todas as publicações em revistas portuguesas da área médica ou com ela relacionadas, provenientes de autores nacionais.[1]

RELEVÂNCIA DO ÍNDEXRMP NO CONTEXTO ATUAL

Todas as revistas se encontram lá, das áreas da pediatria à geriatria, da estomatologia à gastrenterologia, da psiquiatria a qualquer outra área cirúrgica ou médica, incluindo revistas de ética e de gestão, de farmacologia, de saúde pública, de nutrição, de epidemiologia e até de veterinária (artigos escolhidos). Com mais de 200 revistas indexadas, das quais 74 permanecem ativas, o ÍndexRMP representa um acervo rico, diversificado e exaustivo da produção científica portuguesa.[2]

Mas afinal, para que serve uma base de dados como esta, num tempo em que parece que 'tudo' está digitalmente acessível na Internet? E qual a sua relevância frente a gigantes internacionais como a MEDLINE, Embase, Scopus ou Web of Science?

Terá algum interesse, quando conta 'apenas' com cerca de 60 000 artigos e mais de 2100 teses de todas as escolas de medicina do país, comparando-se com aquelas outras cujas dimensões e abrangências estão bem demonstradas na Tabela 1?

O DESAFIO DA CITAÇÃO NACIONAL

Num mundo globalizado, o foco de muitos autores é publicar em revistas internacionais de elevado fator de impacto (FI), com o objetivo de maximizar a visibilidade e o reconhecimento do seu trabalho, muitas vezes indispensável para o seu percurso académico.

Por isso, os artigos em revistas nacionais são menos apreciados devido à menor visibilidade dos seus autores no cenário internacional ou ao baixo FI dessas revistas. Disto resulta uma menor citação de artigos nacionais nas referências bibliográficas, perpetuando um ciclo de pouca visibilidade.

Andamos a esquecer o que de bom se publicou e continua a publicar entre nós desde há muitos anos. Reduzimos a bibliografia dos nossos artigos quase só às publicações de autores, serviços, hospitais e centros académicos de investigação do estrangeiro, desconsiderando a nossa própria atividade científica. Não porque ela não exista ou porque algumas das nossas revistas nacionais, em número cada vez maior, não estejam incluídas naquelas bases, mas porque são comparativamente menos apreciadas por terem esta origem pouco valorizada.

E é aqui que o ÍndexRMP pode ter um papel crucial. Ao garantir um exaustivo acesso a mais de três décadas de produção científica portuguesa na área da saúde, esta base permite que os autores nacionais possam facilmente apreciar a globalidade das publicações feitas no seu próprio país.

CITAÇÕES COM ÉTICA E RIGOR CIENTÍFICO

É bom não esquecer que o FI de uma revista, para um ano específico, é calculado com base no número de citações dos artigos nela publicados que são citados noutros trabalhos científicos, ao longo dos dois anos anteriores. Isto chama a atenção para o sentido de 'entreajuda' que os autores e as revistas nacionais devem ter entre si, procurando incluir mais citações de artigos de revistas portuguesas.

Claro que há que atender ao contexto ético desta prática, para que não se caia na autocitação excessiva de artigos da própria revista em que se está a publicar, o que é condenável.

Citar artigos sem relevância genuína distorce a análise científica e traduz manipulação de métricas, o que pode até levar a sanções por parte da Clarivate, entidade que calcula o FI e monitoriza casos de manipulação. Pode até vir a excluir a revista do seu relatório anual, o *Journal Citation Reports* (JCR),[3] prejudicando a sua credibilidade.

No entanto, se as citações forem cientificamente justificadas e contribuírem para o rigor do estudo, pode ser

1. Centro Hospitalar e Universitário de Coimbra. Unidade Local de Saúde de Coimbra. Coimbra. Portugal.
2. Editor-Chefe. ÍndexRMP. Aveiro. Portugal.
✉ **Autor correspondente:** Jorge Crespo. jorge.crespo1@gmail.com
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Tabela 1 – Comparação das principais bases de dados internacionais com o ÍndexRMP em 2024

Base	N.º revistas	N.º artigos	N.º países	Acessibilidade
MEDLINE	5200	34 000 000	90	Gratuita via PubMed
Embase	8500	38 000 000	95	Paga*
Web of Science	21 000	82 000 000	110	Paga*
Scopus	23 000	77 000 000	140	Paga*
ÍndexRMP	207	60 000	6**	Gratuita

* Geralmente adquirida por universidades e outras instituições, que a disponibilizam aos seus estudantes e pesquisadores
** Inclui toda a Comunidade dos Países de Língua Oficial Portuguesa

apropriado incluir um artigo da própria revista, com essa relevância específica.

Por outro lado, nada há a apontar se as referências bibliográficas disserem respeito a outras revistas nacionais, aumentando a sua visibilidade.

Por tudo isto, é importante poder avaliar o passado do que foi escrito em qualquer das revistas portuguesas para que estas citações cruzadas possam ajudar a valorizar-se mutuamente.

PRESERVAÇÃO DO LEGADO CIENTÍFICO

A disponibilidade deste acervo exaustivo do ÍndexRMP, com mais de 30 anos, facilita a tarefa de referenciação de artigos de revistas portuguesas, que deveria ser mais incentivada entre os autores nacionais.

Através de um *backoffice* modernizado e de um mecanismo de pesquisa eficiente que deve seguir as regras nele definidas, o ÍndexRMP facilita a consulta do seu conteúdo, com atualizações rápidas logo após a publicação digital das revistas. Este arquivo, vasto e organizado, é uma ferramenta indispensável para qualquer pesquisador ou autor português.

Esta base de dados serve também para identificar, em cada hospital ou região do país, quais os profissionais ou as instituições que mais se dedicam a um determinado assunto, partindo do princípio de que estes são os que mais publicam sobre ele.

Adicionalmente, inclui mais de 2100 teses de doutoramento de todas as escolas de medicina do país, desde 1910. Este registo, atualizado anualmente, é também uma ferramenta útil para encontrar quem já estudou um tema específico em profundidade, facilitando a identificação de especialistas para projetos conjuntos ou para apresentações em eventos médicos.

Por último, mas não despiciendo, é o contributo do ÍndexRMP para a questão do plágio médico ou da repetição do mesmo artigo em mais do que uma revista, facto condenável se não for indicado pelos autores e aceite como tal.

CONCLUSÃO

O objetivo desta indexação é claro: permitir que conheçamos, de forma exaustiva e agregada, o que entre nós se publicou e continua a publicar desde há mais de 30 anos, para nos podermos referenciar com facilidade nas bibliografias dos trabalhos que fazemos, valorizando-nos mutuamente e às revistas onde publicamos.

A base está acessível gratuitamente. Por isso, convidamos os pesquisadores a registarem-se e explorarem o seu conteúdo, contribuindo com a sua ajuda para divulgar a ciência portuguesa e as nossas revistas médicas.

AGRADECIMENTOS

Gostaria de expressar o nosso agradecimento a Helena Donato, diretora do Serviço de Documentação e Informação Científica do Centro Hospitalar e Universitário de Coimbra, que desde a primeira hora viu o alcance e incentivou a continuidade deste projeto.

CONFLITOS DE INTERESSE

JC é o editor-chefe da base de dados ÍndexRMP, sobre a qual versa este artigo, da qual é também o seu único proprietário. Dela não recebeu qualquer fundo para o efeito, nem tão pouco aufere qualquer vencimento.

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Este trabalho não recebeu qualquer tipo de suporte financeiro de nenhuma entidade no domínio público ou privado.

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ACTA MÉDICA PORTUGUESA
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Strategies and Factors to Promote Research in Primary Care in Portugal: A Cross-Sectional Study

Estratégias e Fatores Promotores da Investigação nos Cuidados Primários em Portugal: Um Estudo Transversal

Maria Beatriz MORGADO[1], Carolina PENEDO[2], Rubina CORREIA[3,4], Sandra Diniz AMARAL[5], Paulo Jorge NICOLA[6,7], Margarida GIL CONDE✉[8,9]
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ABSTRACT

Introduction: Research is crucial for building an efficient health system care. This reality is particularly evident in primary care, the cornerstone of healthcare services. However, research in primary care is not consistently implemented across Europe. With this study we aimed to: 1) identify the factors and strategies that healthcare professionals consider relevant for promoting research in primary care in Portugal; 2) analyze whether the prioritized strategies vary according to the geographical area, professional group, workplace, interest, and experience in research of the participants.

Methods: We conducted an analytical cross-sectional study using an online survey applied in the first semester of 2023. We designed the survey based on strategies identified in a previous qualitative study. We included health professionals working in Primary Care in Portugal (continental and autonomous regions). We intended to obtain at least 200 answers for each professional category and geographical area. The survey was initially sent to a convenience sample to assess the acceptability and interpretation of the questions. We then disseminated the survey through all national Health Center Clusters and through professional associations. We conducted an analysis using a 5% significance level.

Results: The sample consisted of 1027 participants: 507 doctors, 377 nurses, 106 diagnostic and therapeutic technicians, and 30 secretaries. The majority worked in the Lisbon and Tagus Valley region (51.9%), followed by the North (22.1%) and Centre (17.1%). Around half of the participants worked in a Family Health Unit, 16.5% worked in a Personalized Healthcare Unit, 11% in a Community Care Unit, and 8.7% in a Public Health Unit. The factors promoting research mentioned by a greater proportion of participants were research training (76%), access to mentors (71%) and grants (56%). As for strategies to promote research, most participants supported the existence of dedicated time for research (82%), public grants (65%), institutional support (51%), access to support services (58%) and research data (57%).

Conclusion: There seems to be a consensus on which factors are currently promoting research and what future strategies might be useful for promoting research in primary care in Portugal. Nevertheless, there are some differences between certain sub-groups. This information might be useful to tailor initiatives directed at specific sub-groups. Our intention is to help form policies and strategies to promote research in primary care in Portugal, contributing to the national development on the subject.

Keywords: Primary Health Care; Research; Research Design

RESUMO

Introdução: A investigação constitui uma pedra basilar de um sistema de saúde eficiente. Esta realidade é particularmente evidente nos cuidados de saúde primários, a base do sistema de saúde. Contudo, na Europa, a investigação nesta área não se encontra implementada de forma consistente nem homogénea. Com este estudo pretendemos: 1) identificar os fatores e as estratégias que os profissionais de saúde consideram mais relevantes para promover a investigação nos cuidados de saúde primários em Portugal; 2) analisar se as estratégias priorizadas variam de acordo com a área geográfica, o grupo profissional, o local de trabalho, o interesse e experiência em investigação dos participantes.

Métodos: Conduzimos um estudo analítico transversal, utilizando um inquérito *online* aplicado no primeiro semestre de 2023. Desenhámos o inquérito com base no conhecimento e estratégias obtidas num estudo qualitativo prévio. Incluímos profissionais dos cuidados de saúde primários em Portugal (continental e regiões autónomas), visando um mínimo de 200 participantes por categoria profissional e região geográfica. Selecionámos uma amostra de conveniência para avaliar a aceitabilidade das questões. Posteriormente, divulgámos o inquérito pela totalidade dos Agrupamentos de Centros de Saúde e através de associações profissionais.

Resultados: A amostra foi constituída por 1027 participantes: 507 médicos, 377 enfermeiros, 106 técnicos de diagnóstico e terapêutica e 30 assistentes técnicos. A maioria pertencia à região de Lisboa e Vale do Tejo (51,9%), seguindo-se o Norte (22,1%) e o Centro (17,1%). Cerca de metade trabalhava numa Unidade de Saúde Familiar, 16,5% numa Unidade de Cuidados de Saúde Personalizados, 11% numa Unidade de Cuidados na Comunidade e 8,7% numa Unidade de Saúde Pública. Os fatores promotores da investigação mais comummente referidos foram as oportunidades de formação em investigação (76%), o acesso a mentores (71%) e a bolsas (56%). Quanto às estratégias futuras, a maioria apoiou a existência de tempo dedicado à investigação (82%), bolsas públicas (65%), o apoio institucional (51%), o acesso a serviços de apoio (58%) e a dados para investigação (57%).

Conclusão: Parece existir um consenso acerca dos fatores que promovem a investigação e quais as estratégias que poderão promover a investigação nos cuidados primários em Portugal. Verificam-se, contudo, algumas diferenças entre determinados subgrupos. Esta informação poderá ser útil para

1. Unidade de Saúde Familiar Saúde Laranjeiro. Unidade Local de Saúde Almada-Seixal. Almada. Portugal.
2. Unidade de Saúde Familiar São Julião. Unidade Local de Saúde Lisboa Ocidental. Lisboa. Portugal.
3. Unidade de Cuidados de Saúde Primários. Unidade Local de Saúde Algarve. Faro. Portugal.
4. Faculdade de Medicina. Universidade do Porto. Porto. Portugal.
5. Agência de Investigação Clínica e Inovação Biomédica (AICIB). Porto. Portugal.
6. Instituto de Saúde Ambiental (ISAMB). Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.
7. Instituto de Medicina Preventiva e Saúde Pública. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.
8. Unidade de Saúde Familiar Jardins da Encarnação. Unidade Local de Saúde de São José. Lisboa. Portugal.
9. Clínica Universitária de Medicina Geral e Familiar. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.

✉ **Autor correspondente:** Margarida Gil Conde. maria.conde@edu.ulisboa.pt

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adaptar iniciativas dirigidas a subgrupos específicos. A nossa intenção é ajudar a formar políticas e estratégias para promover a investigação nos cuidados primários em Portugal, contribuindo para o desenvolvimento nacional nesta área.
Palavras-chave: Cuidados de Saúde Primários; Investigação; Projetos de Investigação

KEY MESSAGES

- There is a consensus about the factors and strategies that could promote primary care research in Portugal.
- However, there are some nuances when analysing certain professional categories. This information could be useful for adapting initiatives for specific subgroups.
- We intend to identify policies and strategies to promote national primary care research development.

INTRODUCTION

In Portugal, primary care (PC) serves as the entry point of the National Health Service and acts as the foundation of healthcare services.[1]

In PC, there are three types of health units. Family Health Units (USF) consist of small groups of fixed teams composed of a family doctor, a family nurse, and a secretary.[1] Each team has a list of patients assigned.[1] These units are divided into USF-A and USF-B, according to the type of financial incentives received.[1] We also have personalized healthcare units (UCSP), where some professionals are organized according to specific tasks, such as home visits, diabetes clinic, maternal health, and others.[1] Additionally, there are also Shared Clinical Resource Units (URAP), Continued Care Units (UCC), Palliative Care Units and Public Health Units (USP).[1] These units were organized within Health Center Clusters (ACeS) and collaborated to provide continuous care, addressing the needs of the population within a specific geographical area.[1] At the time the study was conducted, the ACeS were grouped by region under Regional Health Administrations (ARS). Today, these units have been integrated into Local Healthcare Units (ULS).

A firm and vibrant PC relies on a strong research basis.[2] Research in PC aims to improve the quality, effectiveness and safety of healthcare services.[2] It plays a crucial role in developing health policies related to resource allocation and the organization of PC services.[3] The recognition of the importance of PC research led to the creation of the European Research Agenda in General Practice/Family Medicine by the European General Practice Research Network (EGPRN), in 2009.[4] The aim of this agenda was to provide guidance for future research policies.[4,5]

However, PC research in Europe is still far from ideal. Several barriers were identified including little protected time, lack of connection with specialized centers, and the need for research training.[4,6] As there were still inequities in the implementation of research across Europe, in 2021 the EGPRN updated its recommendations and research strategies.[4] These strategies set a global direction and served as a basis for more detailed plans in individual countries, adjusted according to each nation's specific needs and its current research capacity.[4]

In this context, between 2019 and 2022 we conducted a qualitative study to identify which are the best practices to promote research in Portuguese PC.[7] Some strategies have been identified, such as implementing better networking between researchers and stakeholders, financial support, protected time for research, fair relationships with academic centers, support and implementation of research practice based networks.[2,7] Nevertheless, this study is aimed at a small sample, which is not representative or generalizable to the national reality.[7] Additionally, only doctors and stakeholders were included.[7] However, there are other professionals who may conduct research and whose perspectives could have enriched the results.

In the present study, our aim was to identify the factors and strategies that healthcare professionals consider most relevant for promoting research in PC in Portugal, through a quantitative analysis. By conducting an observational study, we will understand whether research promoting factors and strategies vary according to the geographical area, professional group, workplace, interest and experience in research of the participants.

METHODS

Study design and context

We performed an observational, cross-sectional, analytical study by applying surveys.

This quantitative study follows a qualitative study, which used semi-structured interviews with family doctors with broadly recognized research work and other stakeholders, to identify the best practices to promote research in Portuguese PC. We identified 16 strategies for promoting research, such as strengthened institutional support, protected time, increased funding directed towards research, and promoting teamwork with clinicians within the same area or from different backgrounds.[7]

Using the strategies identified in the qualitative study,

we designed a questionnaire that was applied in this quantitative study.

This manuscript adheres to the "Strengthening the Reporting of Observational Studies in Epidemiology" (STROBE) checklist.

Population

We included professionals working in PC in Portugal, namely doctors (general practice/family medicine, public health or other specialties), nurses, psychologists, social workers, technicians (speech therapy, radiology, physiotherapy, nutrition and oral health).

We excluded professionals working in secondary healthcare. Administrative staff and support personnel were not included, as their roles typically do not involve research activities.

Sampling

Considering a group of 200 individuals, the accuracy of the estimates will be ± 6.5% or better (< ± 6.5%) with a 95% confidence interval for characteristics with an approximate frequency of 50% (most conservative scenario). Therefore, we intended to obtain a minimum of 200 answers for each professional category (family medicine doctors, public health doctors, nurses, psychologists and technicians) and for each geographical region (North, Centre, Lisbon and Tagus Valley, Alentejo, Algarve, Azores and Madeira).

Questionnaire

We administered an online questionnaire (Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22171/15609), using Google Forms®, between January and July 2023. Its initial part covered the participants' sociodemographic characterization. The second part covered research experience (training, interest, and experience). We also inquired whether there was any connection to research groups, to ethics committees (EC) or to universities. Lastly, we invited the participants to indicate which factors they considered to be promoting research currently and what future strategies could promote PC research. For each question, each participant chose five aspects from a set of predefined options (established according to the results of the previous qualitative study). Participants were not allowed to submit blank answers.

Initially, we sent the questionnaire to a convenience sample to assess the understanding, acceptability, and interpretation of the questions.

We then requested the dissemination of the questionnaire to PC health professionals in Portugal through all executive directors of Health Center Clusters (continental and autonomous regions), as well as through three national professional associations (the Portuguese Association of General and Family Medicine, the Association of PC Nurses and the National Association of Public Health Physicians). The questionnaire was disseminated via email, social networks, and other institutional channels. We accepted responses obtained between January and July of 2023.

Data processing

We collected the data anonymously and confidentially in a Microsoft Excel® database.

Analysis

We analyzed the data using statistical software IBM® SPSS® Statistics 23. We performed descriptive and comparative analysis, according to the following:

- Numeric variables:
  - Age (continuous variable);
  - Interest (Likert scale: 1 - not interested; 5 - very interested).
- Categorical variables:
  - Geographic region (North, Centre, Lisbon and Tagus Valley, Alentejo, Algarve, Azores and Madeira);
  - Professional group (doctor, nurse, technical assistant, diagnostic and therapeutic technicians, other);
  - Workplace (UCSP, USF-A, USF-B, URAP, UCC, USP);
  - Training in research (post-graduate diploma, master, doctorate, course with > 40 hours or < 40 hours);
  - Previous experience in research (yes/no);
  - Connection to research groups (yes/no), EC (yes/no) or university (yes/no);
  - Promoting factors [mentors, grants, prizes, training, pharmaceutical industry support, Foundation for Science and Technology (FCT) support, research teams, support from private foundations];
  - Strategies (FCT grants, data access, professionalization of the EC; single EC for multicenter studies, single EC platform, support services, institutional support; protected time; link to the academy; teamwork; accounting for research for career progression).

We reclassified the 'interest in research' into 'not interested' (options 1 and 2) and 'interested' (3, 4, and 5).

We calculated the absolute and relative frequencies of the categorical variables.

We used chi-square test (in the presence of categorical variables) and Mann-Whitney U test (in the presence of categorical and continuous variables), considering a 5% significance level.

Ethical considerations

This study was approved by the EC of the Regional Health Administration of Lisboa e Vale do Tejo, Centro, Norte, Algarve and Norte Alentejo. All participants signed an informed consent form for the participation in the study.

RESULTS

Sociodemographic and professional characterization

The sample was composed of 1027 participants (78.8% female). The average age was 42, with a minimum of 23 and a maximum of 70 [Appendix 2, Table 1 (Appendix 2: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22171/15610)].

Participants in this study included 507 doctors, 377 nurses, 106 diagnostic and therapeutic technicians, 30 secretaries, and 8 people with other professional positions. Within the doctors' group, 464 worked in general practice/family medicine, 41 in public health, 1 in endocrinology and 1 in stomatology; 161 were medical residents and 346 were medical specialists. Within the nurses group, 213 were specialist nurses and 152 were non-specialist nurses.

The majority of participants worked in the Lisbon and Tagus Valley region (n = 533), followed by the North (n = 227), Centre (n = 176), Algarve (n = 67), Alentejo (n = 14), Azores and Madeira (n = 5 each).

Around half of the participants worked in a USF (206 in USF-A and 322 in USF-B); 169 worked in UCSP, 113 in UCC, 89 in a USP, 67 in URAP, 34 in the ACeS institution, 7 in Local Health Units (ULS), 6 in the ARS institution, 3 in palliative care and 3 in the private sector.

Factors promoting research

Figure 1 summarizes which factors promoting research were mentioned by the participants [Appendix 2, Table 2 (Appendix 2: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22171/15610)].

Geographical region

There were no statistically significant differences in the factors promoting research selected by participants from different geographical areas.

Professional career

All the professional groups mentioned research training, access to mentors and grants as the main factors promoting PC research.

More than half of the doctors selected these factors: research training (74.2%), access to mentors (75.0%) and grants (50.9%). The pharmaceutical industry support was more valued by doctors (16.6%) compared to nurses (6.4%). In a sub-analysis, there was a difference between medical residents and specialists (14.3% *vs* 17.7%). Additionally, access to research grants and to mentorship were also valued differently by residents and specialist doctors (44.7% *vs* 54.3% and 80.1% *vs* 72.9%, respectively).

Nurses defended the same factors that promote research: training (78.2%), access to mentors (69.2%) and research grants (62.3%). Nurses (62.3%) valued research grants even more than doctors (50.9%). In a sub-analysis, there was a difference between specialist and non-specialist nurses (62.4% *vs* 67.1%).

Diagnostic and therapeutic technicians and secretaries considered the three aforementioned aspects to be the

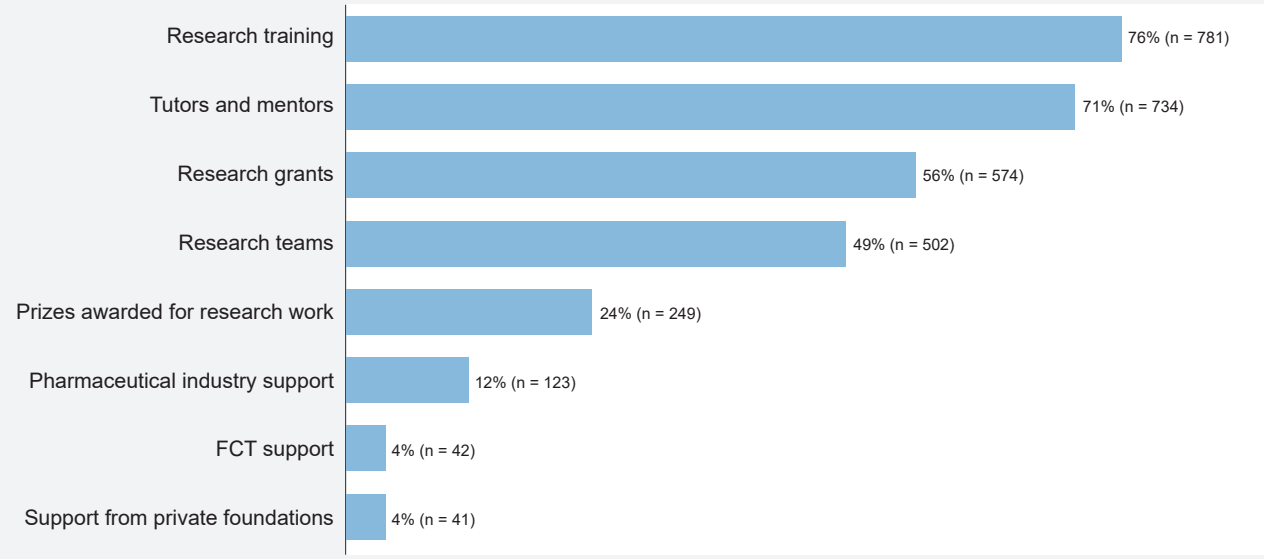

Figure 1 – Factors that promote Primary Care research in Portugal
FCT: Foundation for Science and Technology

main factors promoting research: training (83.3%), access to mentors (70.0%), and grants (56.7%).

Workplace

Professionals working in USF (15%) selected support from the pharmaceutical industry more often than professionals of other contexts ($p = 0.036$).

The FCT's support was seen as a promoting factor by URAP professionals more frequently than by other professionals ($p < 0.001$).

There were no other statistically significant differences in the factors promoting research selected by participants working in different contexts.

Interest in research

Participants with a research interest tended to mention research teams more often ($p = 0.007$) and prizes and FCT support less often ($p = 0.002$ and $p = 0.036$, respectively).

Research training

Participants with research training valued less the training component and the FCT's support as factors promoting research ($p = 0.032$ and $p < 0.001$, respectively).

Previous experience

There were no statistically significant differences in the research-promoting factors selected by participants with or without previous research experience.

Membership of a research group or academy

Participants who were members of research groups or academics tended to value the training component less ($p = 0.003$ and $p = 0.004$, respectively).

Participants with academic ties tended to value the FCT's support more ($p = 0.012$).

Membership of ethics committee

There were no statistically significant differences in the research-promoting factors selected by participants who were members of EC or not.

Strategies for the future promotion of research

Figure 2 describes the strategies for promoting research referred by the participants [Appendix 2, Table 2 (Appendix 2: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22171/15610)].

Geographical region

No statistically significant differences were identified in the strategies chosen by participants from distinct geographical areas.

Professional career

Doctors selected protected time dedicated to research (85.8%), improved access to research data (62.1%) and public grants for research (61.9%) as their main strategies (Fig. 3). A sub-analysis suggested that residents valued

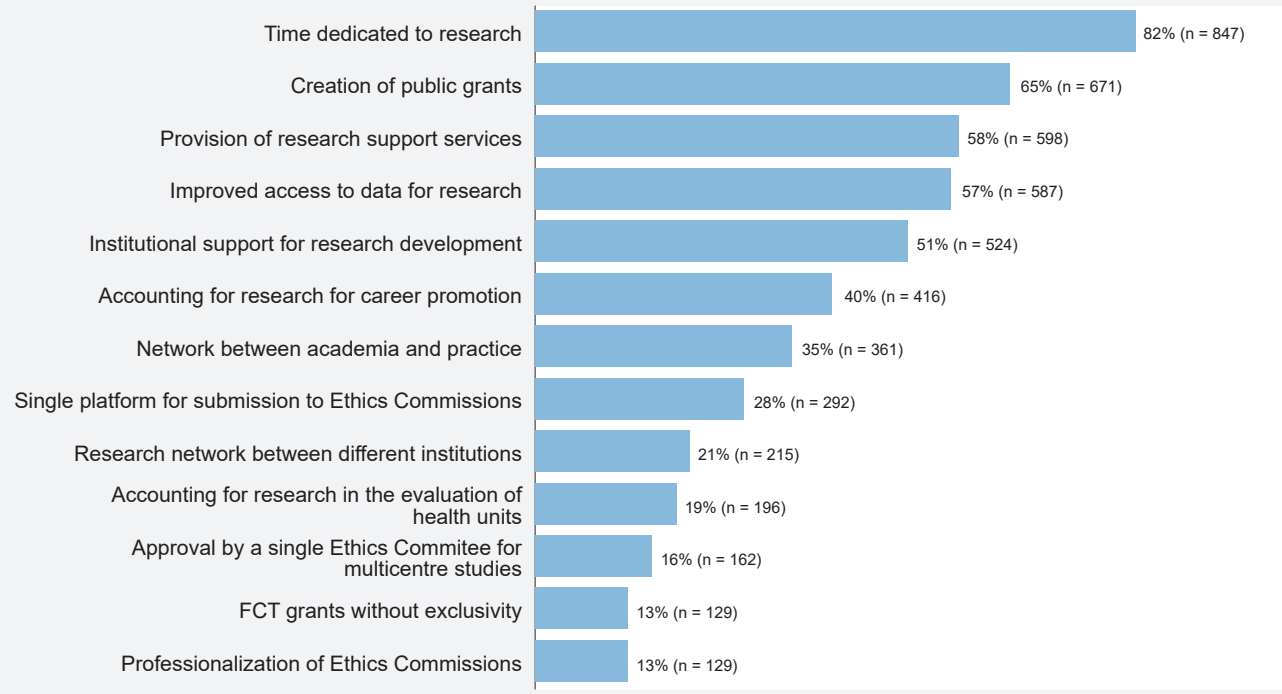

Figure 2 – Strategies for promoting Primary Care research
FCT: Foundation for Science and Technology

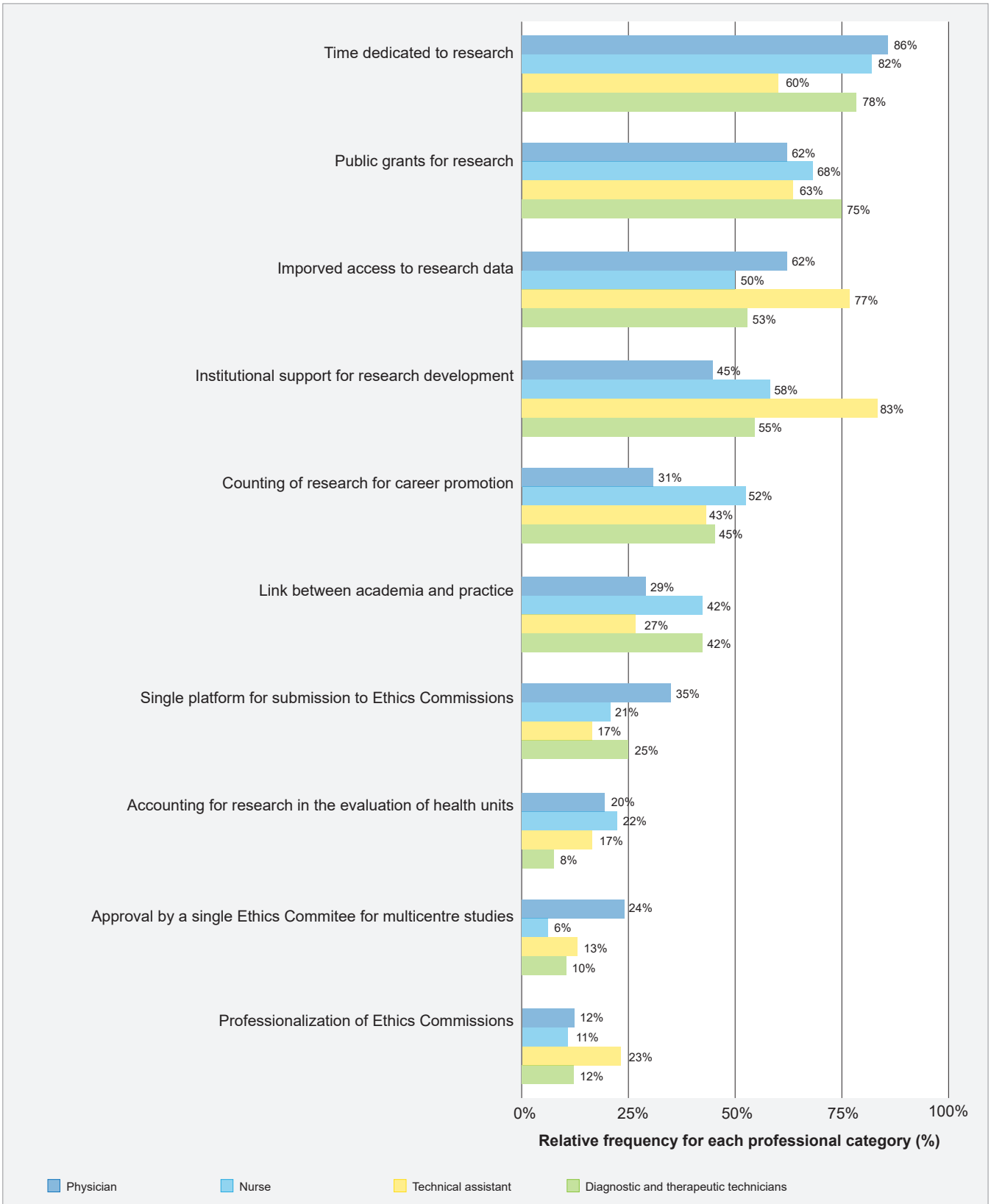

Figure 3 – Strategies for promoting Primary Care research, according to professional groups

strategies related to institutional support (p = 0.002), access to data (p = 0.005) and the submission to the EC more than specialists [approval by a single Committee for multicenter studies (p < 0.001) and the use of a single platform for submitting projects to the EC (p < 0.001)]. In turn, specialist doctors valued academic links (p < 0.001), grants (p = 0.044), protected time (p = 0.006) and counting scientific production towards career progression (p < 0.001).

Nurses favored protected time for research (82.0%), public grants (68.2%), institutional support (58.4%) and counting scientific production toward career progression (52.3%). Specialist nurses valued the submission of projects to EC through a single platform (p < 0.001), the association of research with academia (p < 0.001) and counting scientific production for career progression (p < 0.001) more than non-specialists. Non-specialist nurses tended to value access to data (p = 0.001), institutional support (p < 0.001), and approval by a single EC for multicenter studies (p = 0.001).

Secretaries considered the following strategies: institutional support (83.3%), improved access to data (76.7%), support services (66.7%), grants (63.3%), and protected time for research (60.0%).

Diagnostic and therapeutic technicians favored protected time (78.3%), followed by public grants (74.5%), institutional support (54.7%), and improved access to data (52.8%).

There were no statistically significant differences regarding the provision of FCT public grants, research support services or having a research network.

Workplace

Across all groups, dedicated time was the most popular strategy (Fig. 4).

Professionals from UCSPs chose protected time (86.4%) and public grants (73.4%) as their main strategies. This group also emphasized the value of career progression (46.0%).

Professionals from USF-A also chose protected time (81.1%) and public grants (65.0%), along with improved access to data (57.3%). Professionals from USF-B advocated the same strategies as USF-A professionals: protected time (83.9%), grants (63.0%) and access to data (59.9%). However, the USF-B group emphasized two other options: the professionalization of EC (42.6% of the participants who selected this option) and valuing research in the performance evaluation of Health Units (41.1% of the participants who selected this option).

Professionals from URAP defended the importance of protected time (79.1%), public grants (74.6%), and valuing research in career progression (52.2%).

Professionals from UCC mentioned protected time (85.8%), availability of support services (62.8%), and grants (57.5%), as well as associating academia with practice and valuing research in career progression (both 54.0%).

Public Health Unit professionals defended protected time (78.7%), improved access to data (67.4%), and grants (64.0%).

In an overall analysis, there were no statistically significant differences regarding the acquisition of FCT grants, the use of a single platform for submission to the EC, the availability of support services, institutional support or the creation of a research network between institutions.

Interest in research

The selection of strategies was independent of the participants' interest in conducting research, except for the professionalization of EC, an option chosen more frequently by professionals without interest in research (p = 0.01).

Research training

Participants with research training chose time dedicated to research (p = 0.009) more than those without training.

Previous experience

Participants with research experience chose dedicated time (p = 0.031) more than those without experience. Regarding EC, participants with experience in research selected the approval of multicenter studies by just one EC (p = 0.014) and did not choose the professionalization of EC (p = 0.033).

Membership of a research group or academy

Participants who were members of a research group were less likely to choose public grants compared with those who were not members (p = 0.047). The same was verified for participants who were affiliated to academia (p = 0.008).

Participants with academic ties attributed less value to the availability of support services (p = 0.011) and institutional support (p = 0.014) compared with those without.

DISCUSSION

Research is one of the cornerstones of robust PC. The main factors promoting research identified in this study were research training, access to mentors, and access to grants. However, there is still a significant margin for improvement, which is the reason why it is important to adopt strategies to foster PC research.

In general, the respondents' choices were aligned regarding the priority strategies to be adopted for promoting research. There are small differences in the order of the selected strategies when evaluating subgroups within some variables. When evaluating the sample in relation to the

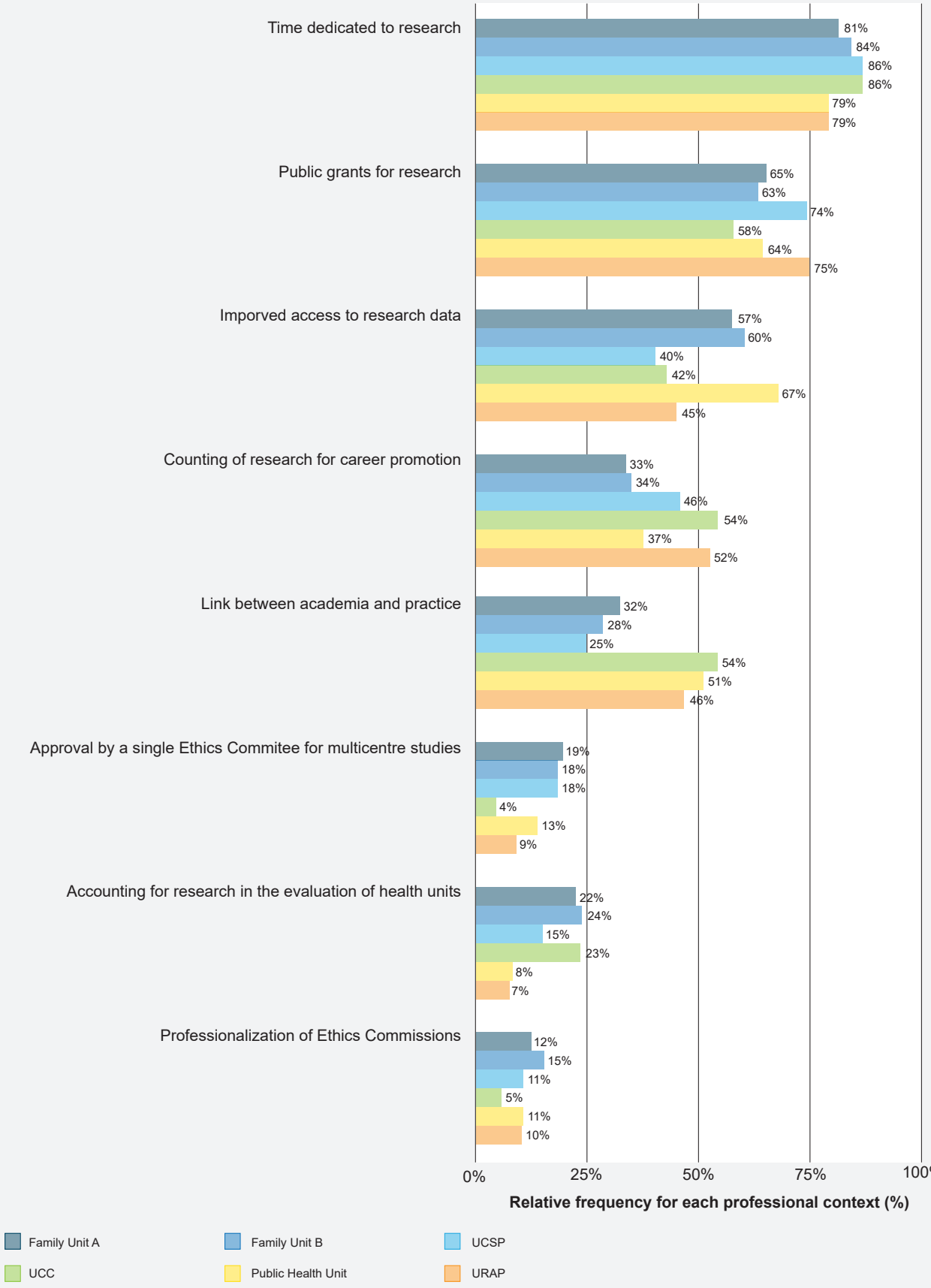

Figure 4 – Strategies for promoting Primary Care research, among different contexts
UCC: Community Care Unit; URAP: Shared Resources Unit; UCSP: Unidades de Cuidados de Saúde Personalizados

geographical area, no differences were found in the order of choices among the different regions of Portugal.

Protected time for research emerged as a predominant strategy, unanimously identified across all categories. Despite variations in professional backgrounds or organizational contexts, the consensus remains steadfast: allocating protected time for research is indispensable for driving meaningful advancements in PC. Protected time, away from clinical duties, is a strategy for promoting research that has also been identified in previous international studies.[8,9] It is in practice in countries such as the United Kingdom. The British system provides protected time for the researcher (through job planning and reduced clinical tasks) and for the project manager.[8,10] There are also recommendations that will make protected time for research become a reality in Australia.[8]

Other strategies most frequently listed were the access to public grants, research support services and data; greater institutional support and professional valorization for those who conduct a research project.

Investing in research grants was selected by professionals from all careers and settings. The importance of the support and funding obtained through grants is therefore evident. Investing in research funding is associated with an increase in research opportunities, confidence, and knowledge of research teams, and has a positive impact on research culture. In turn, fostering a research culture is associated with better productivity in healthcare.[8]

Although institutional support was selected by fewer than half of the doctors, it was one of the most selected strategies among nurses, secretaries and diagnostic and therapeutic technicians. Institutions can strengthen a supportive, flexible and equitable research culture (e.g., through PhD training and the development of a research agenda).[9,11] Institutions can also create new funding systems and opportunities, as well as provide administrative and research support (in areas as study design, communicating, and publishing research results).[9,11]

Access to research data was one of the strategies most advocated by doctors and secretaries. Nowadays, although there are official digital platforms for monitoring health outcomes in PC (MIM@UF® and BI-CSP®), these platforms do not cover all the data recorded by professionals in their practice. Easy and automated data access could have a positive impact on the ability to conduct a research project.

Access to support services was also emphasized by the participants. This could include close contact with mentors and professionals dedicated to searching for funding opportunities, study design, statistical analysis, and database management.[12]

The results we obtained in this study are in line with the EGPRN key factors for promoting research: research training, protected time, the establishment of connections between the academy and researchers, access to mentors, and the creation of sustainable research practice-based networks.[2] In addition, the idea of keeping research processes simple is advocated, so that researchers can focus on the research itself – which is aligned with the strategy of reformulating the submission of a project to the EC.[2]

We did not find differences in the strategies and factors promoting research selected by professionals from different regions. This suggests that, despite any organizational nuances that may exist, geography does not impact how research is integrated into clinical practice, and the difficulties experienced seem to be similar.

Nevertheless, there are differences in the strategies advocated by professionals from different professional categories. The fact that both doctors and nurses favor protected time for research could be related to the high workload felt by these professionals. Data collection can also be a highly time-consuming process, so easy access to data (reported by doctors and technicians) would be an advantage. In turn, institutional support increases confidence and security of research teams, as defended by nurses, secretaries, and diagnostic, and therapeutic technicians.

There were also some variations in the strategies selected by professionals from different workplaces. Professionals from UCSPs, URAPs and UCCs valued research as a facilitator of career progression, which may be in line with the criteria for valuing professionals' curriculums and the performance evaluation of their health units. On the other hand, facilitating access to data was one of the strategies mostly selected by USF and USP professionals. This may be due to the fact that, in their clinical practice, these professionals register a large volume of clinical and epidemiological data on digital platforms. However, this data is not fully available for automated extraction and not all regions have departments to help professionals obtain the information they need.

Differences observed within the categories of "profession" and "workplace" draw our attention to the fact that diverse backgrounds and competencies shape our knowledge and the places where we find opportunities. This underscores the importance of multidisciplinary teams in research, composed of individuals with varied research skills.

The limitations of this study include the possibility of selection bias, given the partial representativeness of some professional categories and some geographical regions (like Alentejo, Madeira, and Azores). Additionally, the participants were more likely to have a greater interest in research, to answer according to what is socially accepted, and to change their perspective on the strategies to be implemented over time – a characteristic that the questionnaire did not assess. Another limitation is that we applied a

questionnaire with predefined answers, even though it was based on a previous qualitative study. Lastly, we did not include an evaluation of the implementation of the identified strategies (who is responsible for their application and their results).

As for the strengths, this study provides a national portrait of professionals' preferences regarding the strategies for promoting PC research in Portugal. This study also contributes to the future adaptation of strategies to specific subgroups.

Overall, the results of the present study are consistent with evidence from the international context. Nonetheless, the data is only representative of the Portuguese population, so it cannot be generalized to other populations, nor can it guarantee the representativeness of certain professional subgroups.

Since 2024, the National Health Service has been reorganized into ULS, which allow greater coordination between PC and hospitals (that now share the same executive board).[13] Additionally, the USF-B model was generalized, with most USF-A and UCSP units transitioning to USF-B.[14] This organizational change could be an opportunity to galvanize PC research.

It is expected that promoting PC research requires several simultaneous strategies. Our future aim is to prioritize actions, integrate strategies and organize them according to their feasibility. This study serves as the basis for a future forum that will bring together PC professionals and policymakers. The conclusions of this forum will be summarized in a policy brief that aims to guide collective efforts and policies to strengthen PC research, translating scientific evidence into practical recommendations to promote PC in Portugal.

In the future, it will be important to evaluate the impact of the adopted strategies according to the scientific production and dissemination of results, the number of grant-funded research studies, the establishment of collaborative networks, the involvement of stakeholders, the results that have modified clinical practice and, ultimately, the improvement of patient health.[4,10]

CONCLUSION

The main factors promoting research available in PC in Portugal were research training, access to mentors, and grants. As for the strategies to be developed in the future to foster research, the following were emphasized: protected time dedicated to research; the creation of public grants to support and finance new projects; institutional support; and access to support services for the different phases of research. Although there were small differences in the choice of strategies by different professional categories, there were no significant differences in the strategies chosen by professionals from different regions of the country. These results are consistent with the evidence from the international context, but the data is only representative of the Portuguese population, so it cannot be generalized to other populations.

Overall, the findings underscore the need for strategic investments and systemic changes to improve research capacity and culture in Portuguese PC. Implementing these strategies can lead to significant enhancements in healthcare delivery and patient outcomes, ensuring that PC services are evidence-based, effective, and innovative.

PREVIOUS AWARDS AND PRESENTATIONS

This research study was presented at the 41st National Meeting of General and Family Medicine of the Portuguese Association of General and Family Medicine and was awarded the prize for best oral communication in the area of 'Research'.

AUTHOR CONTRIBUTIONS

MBM: Formal analysis, research, writing of the original draft, writing, revision and validation of the final text.

CP, RC: Writing, revision and validation of the final text.

SA: Formal analysis, writing, revision and validation of the final text.

PN: Conceptualization, methodology, resources, writing, revision and validation of the final text, supervision.

MGC: Conceptualization, methodology, software, validation, formal analysis, research, writing, revision and validation of the final text, supervision.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

COMPETING INTERESTS

MGC has a leadership or fiduciary role in Comissão de Avaliação de Tecnologias de Saúde, INFARMED.

RP is the clinical director and executive member of the board of directors of Unidade Local de Saúde do Algarve.

PJN participated on a data safety monitoring board or advisory board for Merck Sharp and Dohme; is the department coordinator for Associação Portuguesa de Médicos de Medicina Geral e Familiar (APMGF); received research

services from Conselho Português para a Saúde e Ambiente (CPSA), Instituto de Saúde Baseada na Evidência (ISBE), Associação para Investigação, Desenvolvimento da Faculdade de Medicina (AIDFM).

All other authors have declared that no competing interests exist.

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AMP ACTA MÉDICA PORTUGUESA
A Revista Científica da Ordem dos Médicos

Assessing Fear of Cancer Recurrence among Adolescents and Young Adults: The Portuguese Validation and Psychometric Assessment of the "Fear of Cancer Recurrence 7" Scale

Avaliar o Medo de Recorrência do Cancro em Adolescentes e Jovens Adultos: A Validação Portuguesa e Avaliação Psicométrica da Escala "Medo de Recorrência do Cancro 7"

Maria Carolina NEVES✉[1], Célia M. D. SALES[1], Joana OLIVEIRA[2], Ana BÁRTOLO[3], Judith B. PRINS[4], Sara MONTEIRO[5,6,7]
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ABSTRACT

Introduction: Adolescents and young adults with cancer experience high levels of fear of cancer recurrence (FCR), negatively impacting their lives. However, no measure has been validated worldwide to assess FCR levels among these young people. This study aims to validate the FCR7, a scale that measures FCR, for the Portuguese population of adolescents and young adults.

Methods: Ninety-two participants were recruited online. They were primarily women (83.7%) with a mean age of 26.01 years at recruitment and 19.38 years at cancer diagnosis, with a variety of cancer diagnoses and previous treatments. Most participants were no longer under active treatment (75%), and approximately 75.1 months had passed since their diagnosis. Fear of cancer recurrence, anxiety and depression levels, and quality of life were assessed.

Results: The results showed that FCR7 has good model fit and reliability. Concurrent and divergent validity were also confirmed, with FCR being positively related to anxiety and negatively associated with quality of life. A cut-off score was found, discriminating between clinical and non-clinical levels of FCR. Almost 70% of the participants experienced clinical levels of FCR. We conclude that FCR7 is a valid unidimensional scale to assess FCR levels among Portuguese adolescents and young adults.

Conclusion: More research should be conducted to validate FCR measures to be used among adolescents and young adults across the globe. The existence of a valid and brief measure to assess FCR among this population in Portugal is an asset for national health professionals and researchers.

Keywords: Adolescent; Fear/psychology; Neoplasm Recurrence, Local/psychology; Psychometrics; Reproducibility of Results; Surveys and Questionnaires; Young Adult

RESUMO

Introdução: Os adolescentes e jovens adultos com cancro experienciam níveis elevados de medo da recorrência do cancro (FCR), podendo ter um impacto negativo nas suas vidas. Contudo, ainda nenhuma medida foi validada para avaliar os níveis de FCR nestes jovens a nível mundial. Este estudo tem como objetivo validar a FCR7, uma escala que mede o FCR, para a população portuguesa de adolescentes e jovens adultos.

Métodos: Noventa e dois participantes foram recrutados *online*. Eram maioritariamente mulheres (83,7%), com uma idade média de 26,01 anos no momento do recrutamento e de 19,38 anos no momento do diagnóstico de cancro, com uma variedade de diagnósticos de cancro e tratamentos anteriores. A maioria dos participantes já não se encontrava em tratamento ativo (75%) e tinham passado aproximadamente 75,1 meses desde o diagnóstico. Os níveis de FCR, ansiedade e depressão e qualidade de vida foram avaliados.

Resultados: Os resultados mostraram que a escala FCR7 tem um bom ajuste e fiabilidade. As validades concorrentes e divergentes foram também confirmadas, com o FCR correlacionando-se positivamente com a ansiedade e negativamente com a qualidade de vida. Um ponto de corte foi identificado, permitindo discriminar entre níveis clínicos e não clínicos de FCR. Quase 70% dos participantes apresentaram níveis clínicos de FCR.

Conclusões: Conclui-se que a FCR7 é uma escala unidimensional válida para avaliar os níveis de FCR nos adolescentes e jovens adultos portugueses. É importante haver mais investigação para validar medidas de FCR para esta população mundialmente. A existência de uma medida válida e breve para avaliar o FCR entre os adolescentes e jovens adultos em Portugal é uma mais-valia tanto para os profissionais de saúde, como para os investigadores nacionais.

Palavras-chave: Adolescente; Adulto Jovem; Inquéritos e Questionários; Medo/psicologia; Psicometria; Recidiva Local de Neoplasia/psicologia; Reprodutibilidade dos Resultados

1. Center for Psychology. Faculty of Psychology and Education Sciences. Universidade do Porto. Porto. Portugal.
2. Department of Education and Psychology. Campus Universitário de Santiago. Universidade de Aveiro. Aveiro. Portugal.
3. CINTESIS@RISE. Universidade Portucalense. Porto. Portugal.
4. Department of Medical Psychology. Radboud University Medical Centre. Nijmegen. The Netherlands.
5. CINTESIS@RISE. Department of Education and Psychology. Campus Universitário de Santiago. Universidade de Aveiro. Aveiro. Portugal.
6. Department of Social Sciences and Management. Universidade Aberta. Lisboa. Portugal.
7. Center for Global Studies. Universidade Aberta. Lisboa. Portugal.

✉ **Autor correspondente:** Maria Carolina Neves. mariacneves11@gmail.com

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KEY MESSAGES

- This is the first study worldwide to validate a measure to assess fear of cancer recurrence (FCR) among adolescents and young adults (AYAs).
- Fear of Cancer Recurrence 7 is a valid and reliable self-report measure to assess FCR levels in Portuguese AYAs.
- The scale allows the identification of AYAs with clinical levels of FCR who may need additional support.
- The FCR7 validation to Portuguese AYAs is an asset to national healthcare professionals and researchers.
- More measures need to be developed and/or validated with the unique needs and characteristics of AYAs in consideration.

INTRODUCTION

After being diagnosed with cancer, some people experience concerns that the disease may progress. Similarly, some of those who are in remission may worry about the cancer returning. This "fear, worry, or concern about cancer returning or progressing" is known as fear of cancer recurrence (FCR).[1] This is a normal response after diagnosis, as there is a real possibility that the cancer might return or progress. This fear is also a complex and intense experience, frequently present in patients' lives[2] with significant impact, making it one of their top concerns.[2,3]

The Self-Regulation Model of Illness by Lee-Jones *et al*[4] was the first model to try to understand FCR. It looked at FCR from a cognitive behavioral perspective and hypothesized that it varies according to each person's illness representation. The authors suggested that internal and external cues are antecedents that can activate cognitions, beliefs, and emotions related to FCR, depending on how they are interpreted. This can lead to behavioral and psychological consequences, which can further influence the cognition and interpretation related to them. Some examples of these triggers have been found in the literature, like bodily sensations, waiting for medical tests or appointments, and hearing, talking, reading, thinking, or remembering things about cancer or their experience.[2,5] Some FCR experts also pointed out that persistently high levels of preoccupation and/or worry and hypervigilance about physical symptoms of a possible recurrence are key features of clinical FCR.[6] These findings seem to support the role that internal and external cues play in the experience of FCR, but more evidence is needed.

Even though most sociodemographic and clinical characteristics have not been associated with high FCR in a systematic review of adults with cancer,[3] younger age has been frequently related to high levels of FCR.[3,7,8] This association was found in systematic reviews, some with meta-analysis, that focused on cancer patients over 18 years of age, suggesting that younger cancer patients can be at an elevated risk for experiencing higher FCR levels than older cancer patients.

Studies with adolescents and young adults (AYA) diagnosed with cancer between the ages of 15 and 39[9] have found that 13% - 62% of patients report high levels of FCR.[10] This prevalence is higher than what has been found for older adults.[3,8] Most of the evidence on FCR among AYAs was synthesized by Yang *et al*[10] in their systematic review. They found that those with higher FCR levels experienced higher distress and anxiety levels and lower quality of life. Additionally, a negative association was found between FCR and quality of life, as well as physical and psychological functioning. More recent papers had results in line with what had been previously found. They've found that anxiety and depression symptoms were positively related to FCR levels[11,12] and that experiencing psychological distress, posttraumatic symptoms, and anxiety predicts high FCR levels.[13] These findings are similar to what has been previously found in the literature with adults.[3] Regarding its trajectory over the years, it has been found that for approximately one-third of young breast cancer survivors, FCR levels can worsen or stay high for up to five years post-diagnosis.[14] Considering the high prevalence of FCR among AYAs, its significant impact on their mental health, and the fact that, for many survivors, it can remain high or even worsen over the years, it is important to further address this topic.[10-13]

Adolescents and young adults have an extensive age range encompassing subgroups that differ regarding their physiological and psychological development.[15] As in previous studies,[16] this study focused exclusively on younger AYAs, aged 15 to 25 years at diagnosis. This approach ensures that the included participants were sufficiently homogeneous, with more similar development challenges.

The evidence shows that the number of children, adolescents, and young adult cancer survivors is increasing in Europe every year and is expected to continue increasing.[17] In Portugal, 52 723 people were diagnosed with cancer in 2020, with 2045 of these occurring in young people between the age of 15 and 39. Of these new diagnoses, 330 happened in patients between 15 and 24 years old, with roughly the same incidence in male (n = 177) and female (n = 153) individuals.[18] Even though they correspond to a small portion of all cancer diagnoses in Portugal, the incidence has increased in the last 20 years.[19] Adolescents and young adults have specific characteristics and needs

that distinguish them from children and adults. One of these differences is their greater cognitive capacity, which allows them to better understand the severity of their diagnosis compared to children.[20] This makes AYAs a unique cancer group that is still underrepresented in cancer research, including in Portugal.

Among all the studies investigating FCR in AYAs, measures used to assess FCR were not previously validated for this population. In the systematic review by Yang *at al*,[10] they found instruments like the Cancer Worry Scale, Concerns About Recurrence Scale, and the short form of the Fear of Progression Questionnaire were the most frequently used instruments. Additionally, some studies also used a single question to assess FCR, and others used study-specific questions. The most recent papers on FCR in AYAs kept using measures like the short-form versions of the Fear of Progression Questionnaire[11,21] and the Fear of Cancer Recurrence Inventory,[12,13] which are only validated for adults. There are no guarantees that measures validated for adults will be valid or suited for younger populations, like AYAs. Thus, such measures must be validated for the AYA population.[10,22] Validating a measure to assess FCR levels for AYAs would ensure that the measure used is really suitable for this population. This could improve research and provide healthcare professionals with a valid tool for assessing FCR levels in AYA.

One concern with the aforementioned measures is that they were developed before the accepted definition of FCR was developed. Some are also extensive, making them time-consuming and burdensome when added to a study protocol or in clinical practice. It has been suggested that an instrument with few items could be the best way to assess FCR.[23] One instrument that checks these criteria is the recently developed FCR7 scale.[24]

Published in 2018, the FCR7 is a short unidimensional measure with only seven items that can be used as a screening instrument. When needed, it can be followed by a more extensive assessment, with other questionnaires or a clinical interview. The psychometric properties of FCR7 have been studied in detail, supporting its use in adults. This scale is widely used and, as far as we know, was validated for China,[25] India,[26] and Brazil.[27] In this latest validation, 41.3% of participants preferred FCR7 over another frequently used FCR scale.[27] Table 1 shows the psychometric properties of the original and translated version of FCR7 in more detail.

At the time this study was carried out, no measure for FCR had been validated for Portugal or AYAs. Considering that FCR7 is a short, simple, and valid widely used measure of FCR, validation for Portuguese AYAs seems like a good initiative. Therefore, the aim of this was to validate the FCR7 for the Portuguese population of AYAs. In addition,

Table 1 – Psychometric characteristics of published validations of FCR7

Author, year	Country	Sample	Number of items	Number of dimensions	Modification index adjustments	Internal consistency	Concurrent validity	Divergent validity
Humphris *et al*, 2018[27]	Scotland	206 breast cancer patients and 53 colorectal	7	1	Not reported	α = 0.92	Variable: anxiety Measure: HADS* If obtained: Yes	Variable: depression Measure: HADS* If obtained: Yes
Lee *et al*, 2020[28]	China	160 early-stage lung cancer patients	7	Unidimensional	Item 4 - Item 5; Item 5 - Item 6	α = 0.9	Variable: anxiety Measure: HADS* If obtained: Yes	Variable: quality of life Measure: EORTC QLQ-C30** If obtained: Yes
Nandakumar *et al*, 2022[29]	India	106 breast cancer survivors	7	Not assessed	Not applicable	α = 0.86	Not clear***	Not clear***
Bergerot *et al*, 2023[30]	Brazil	100 with localized cancer and 100 with metastatic cancer	7	Unidimensional	Item 1 - Item 2; Item 1 - Item 7	α = 0.89	Not assessed	Not assessed

* HADS: Hospital Anxiety and Depression Scale;
** European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core-30;
*** Authors performed correlation analysis but did not state clearly if or which were to assess convergent and divergent validity.

the study also intends to use patient and public involvement (PPI) to improve the study materials.

METHODS

Participants

A sample of Portuguese AYAs with cancer was recruited online. To be eligible for this study, participants had to (a) have had a previous cancer diagnosis and (b) have been between the ages of 15 and 25 at diagnosis. No limits were imposed on time after diagnosis and survivorship phase since the evidence shows no association between most clinical variables and FCR levels.[3,10]

One hundred twenty-one participants were initially recruited. Of these, 26 did not have a cancer diagnosis between the ages of 15 and 25, one was not a cancer patient, and two other participants were found to be extreme outliers in terms of age and time since diagnosis. Thus, the final sample included 92 participants. These were mostly women (83.7%), single (82.6%), and employed full-time (46.7%) or students (33.7%). Participants were between 15 and 47 years old at recruitment and 15 and 25 at diagnosis. Most were diagnosed up to five years (60 months) prior to their participation, with a wide variety of cancer diagnoses and previous treatments. Most were no longer under active treatment (75%), and only 16.3% had a recurrence. More details about the participants' sociodemographic and clinical characteristics can be found in Table 2.

Measures

A sociodemographic and clinical questionnaire was included. This questionnaire assessed the participant's age at recruitment, sex, marital status, education, and professional situation. As for medical information, it included age at cancer diagnosis, type of cancer diagnosis, time since diagnosis, treatment phase at recruitment, previous treatments, previous recurrences, and whether they had needed psychological support.

The FCR7 scale[24] assessed FCR levels. This scale was already translated and culturally adapted to Portuguese by another research team and is currently being validated for adult cancer survivors in Portugal. However, this version has not been published yet. The FCR7 is a unidimensional scale that includes six items on a five-point Likert scale and one item, the last one, scored on an 11-point scale. One example of an item is "I am afraid that my cancer may recur". In the original article, an excellent internal consistency was found (α = 0.92). A higher score indicates a higher FCR.

Additionally, we used the Hospital Anxiety and Depression Scale[28,29] to assess anxiety and depressive symptoms. This measure includes 14 items on a four-point Likert scale. Higher scores indicate higher levels of anxiety and depressive symptoms. These symptoms can be classified as normal (0 - 7), mild (8 - 10), moderate (11 - 14), and severe (15 - 21). One example of the anxiety subscale is "I get a sort of frightened feeling as if something awful is about to happen". At the same time, "I still enjoy the things I used to enjoy" exemplifies the type of items in the depression subscale. The Portuguese version showed good internal consistency for both anxiety (α = 0.76) and depression (α = 0.81) subscales. In this study, Cronbach's alpha of 0.87 and 0.77 were found for anxiety and depression, respectively.

Finally, the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core-30[30,31] was used to assess the quality of life of cancer patients. It includes 30 items on a four-point Likert scale. An example of an item is "Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?". A higher score implies better functioning, except for symptom subscales, where higher scores point to higher symptoms. The Portuguese version showed good internal consistency, ranging from 0.74 to 0.88, except for the subscale of cognitive functioning, which showed an internal consistency of 0.52. In our sample, it ranged from 0.79 to 0.88, apart from the cognitive functioning subscale with a 0.69 Cronbach's alpha.

Procedure

Patient and public involvement

Before starting the data collection for the validation study, patients and the public were involved in two pilot studies. The first pilot study included two young cancer survivors and two members of the Acreditar association. This Portuguese association focuses on young people with cancer and their families. One of the members of this association was also a cancer survivor, while the other had a psychology degree. We received feedback regarding our study materials and the questionnaire. One of the young people with cancer could not attend the feedback meeting. Some problems were raised about the wording of some items of the FCR7 scale, which needed to be made clearer. Considering this, a second pilot study was undertaken to adapt the items to AYAs. Seven young people with cancer between the ages of 15 and 25 collaborated with the team. They analyzed the items of the FCR7 scale and suggested clearer wording when necessary. After this, since the wording of some items had been slightly modified, the FCR7 scale was backward translated to English and sent to the author of the original scale.

Data collection

After the author's approval, recruitment for the validation study began. The platform InquéritoUP powered by LimeSurvey was used to create online questionnaires. The questionnaire was disseminated online by two Portuguese

Table 2 – Sociodemographic and clinical characteristics of the participants

	n	%	Range	Mean	Median	Quartile	SD
Sex							
Women	77	83.7%					
Men	15	16.3%					
Age at recruitment (years)			15 - 47	26.01	25.5	Q1 = 22 Q3 = 29	6.2
Marital status							
Single	76	82.6%					
Non-marital partnership	8	8.7%					
Married	8	8.7%					
Education level							
Middle school	6	6.5%					
High school	31	33.7%					
Bachelor's degree	33	35.9%					
Masters' degree	21	22.8%					
Doctorate degree	1	1.1%					
Occupational status							
Student	31	33.7%					
Full-time employee	43	46.7%					
Part-time employee	2	2.2%					
Unemployed	9	9.8%					
Other	7	7.6%					
Age at cancer diagnosis (years)			15 - 25	19.38	18.5	Q1 = 16 Q3 = 23	3.67
Time since diagnosis (months)			1 - 360	75.4	60	Q1 = 18.5 Q3 = 108	71.6
Up to 60 months	52	56.5%					
61 - 120 months	23	25.0%					
More than 120 months	17	18.5%					
Cancer diagnosis							
Leukemia	18	19.6%					
Hodgkins lymphoma	24	26.1%					
Non-Hodgkins lymphoma	4	4.3%					
Thyroid cancer	6	6.5%					
Sarcoma	11	7.6%					
Brain cancer	7	7.6%					
Breast cancer	7	7.6%					
Ovarian cancer	3	3.3%					
Other	12	17.4%					
Treatment status							
Active/Under treatment	23	25.0%					
No longer under treatment	69	75.0%					
Previous treatments							
Surgery	43	46.7%					
Radiotherapy	43	46.7%					
Chemotherapy	73	79.3%					
Hormonal therapy	4	4.3%					
Immunotherapy	4	4.3%					
Transplant	10	10.9%					
Other	5	5.5%					
Had a recurrence	15	16.3%					
Needed psychological support	43	46.7%					

associations focused on young people with cancer (Acreditar and Fundação Rui Osório de Castro) on their network and social media platforms. The questionnaire was also shared in Facebook groups and Instagram pages directed towards cancer patients and survivors. Recruitment occurred between November 25, 2022, and February 28, 2023.

This validation study was approved by the Ethics Committee of the Faculty of Psychology and Education Sciences of the University of Porto (Reference number: 2022/03-06c; Date of approval: July 13, 2022).

Data analysis

The data analysis was conducted using SPSS version 28 and MPlus version 22, with a significance level of p = 0.05 (two-tailed). Analyses included descriptive statistics, normality checks, correlations, and internal consistency to evaluate item properties. Internal consistency was assessed using Cronbach's alpha, with values between 0.70 and 0.95 deemed acceptable.[32] Confirmatory factor analysis (CFA) was performed to evaluate the construct validity of the Portuguese FCR7 for AYAs, aiming to confirm its unidimensionality and fit compared to the original[24] and translated versions.[25-27] Model fit was assessed using chi-square analysis (χ^2), root mean square error of approximation (RMSEA), comparative fit index (CFI), and weighted root mean square residual (WRMR).[33-35] Criteria for acceptable fit were χ^2 non-significance, RMSEA ≤ 0.08, CFI ≥ 0.95, and WRMR < 0.9.[41] Modification indices (MI) were used to address potential error correlations, allowing for theoretically justified adjustments to improve model fit.[42] These steps followed established best practices in psychometric validation, ensuring robustness in evaluating the scale's internal structure. Convergent and divergent validity were examined through correlations between FCR7 and validated scales Pearson's coefficient was used for normally distributed variables, and Spearman's coefficient for non-normal distributions.[36] Correlation strength was categorized as weak (0.0 - 0.3), moderate (0.3 - 0.7), or strong (0.7 - 1.0).[36] The choice of variables and measures to use was based on the previous studies of FCR7. For concurrent validity, FCR7 was hypothesized to correlate positively with the anxiety subscale of the HADS scale. For divergent validity, a weaker negative correlation was expected between FCR7 and QoL measured by the QLQ-C30 scale.[24,28] A receiver operating characteristic (ROC) analysis determined the cut-off score. This analysis evaluated the area under the curve (AUC), sensitivity, specificity, and predictive values, with AUC > 0.5 considered acceptable.[36] The optimal cut-off was identified based on the balance between sensitivity and specificity and their alignment with the AUC value.[36] This methodological approach is widely recognized for its application in health-related scale validation.[43] Finally, FCR levels among AYAs were analyzed descriptively, including the total FCR7 score and the proportion of participants in clinical and non-clinical categories based on the established cut-off. The inclusion of additional references ensures that the methodological approaches used were robustly justified and aligned with contemporary psychometric research.

Statistical power analysis

A post-hoc power analysis was conducted to verify that the sample size of 92 participants was sufficient for the statistical tests performed. The analysis was conducted using G*Power software, with a significance level of p = 0.05, a desired statistical power of 0.80, and an effect size based on Cohen's (1988) guidelines.[50] The results demonstrated that the sample size met the required statistical power (> 0.80) for all analyses, ensuring the robustness and reliability of the study's findings. These outcomes support the validity of conclusions drawn from the CFA model fit indices, ROC classification accuracy, and correlation assessments, confirming the study's ability to detect large to medium effect sizes.

RESULTS

Patient and public involvement

Patient and public involvement contributed to the study by improving study materials. Based on the feedback received from patients and the public, improvements were made to the information provided to participants: information was added that the study was being carried out in collaboration with two national organizations, and it was added that there could be a second participation if participants wanted it. Some feedback was also received regarding the FCR7 scale. Item four was considered difficult to interpret since the expression was not commonly used in Portuguese. As for item six, they suggested substituting "physical signs" for "physical symptoms". During the second pilot study, the wording of these items was improved so it was more straightforward for Portuguese speakers, ensuring face validity. This led to some delays in the study and required additional time from the research team.

In the sociodemographic status and clinical questionnaire, removing the option "palliative care" from treatment status, and giving the chance to add more details to the time since the diagnosis question was suggested. They also indicated that the sociodemographic and clinical questionnaire should appear after the information sheet and before the remaining scales. Additionally, it was defined that participants who contacted the researcher due to emotional reactivity to the study could be referred to Acreditar, which could provide the necessary support. Patients and the public also suggested that the word "cancer" should be substituted for

"oncologic disease." This expression is not commonly used in English, but it was considered a better word for the Portuguese version since some young people could be sensitive to the word "cancer", which has a stronger negative connotation in Portuguese.

Preliminary analysis: item properties

A preliminary data analysis showed that all possible Likert scale response values were observed for each item. The results indicated that the FCR7 scale had a good internal consistency (α = 0.89), and there was a low variation in Cronbach's alpha if items were deleted. All inter-item correlations were positive and higher than 0.30 and lower than 0.82, suggesting the absence of multicollinearity. The item-total correlations of the scale were higher than 0.40. An assessment of normality revealed that the kurtosis and skewness scores for each item were between -2 and 2[45] (Table 3). Based on this analysis, all FCR7 items were retained in the following steps.

Factorial validity

The internal structure of the FCR7 scale was assessed using a CFA. The original unidimensional model showed a significant misfit, as indicated by a significant χ^2 test and RMSEA above the recommended threshold: $\chi^2(14) = 64.22$; $p < 0.001$; $\chi^2/df = 4.59$; RMSEA = 0.20; 95% CI [0.15 - 0.25]; CFI = 0.98; WRMR = 0.59. These results suggested that the responses to the items might be influenced by additional factors beyond the proposed single factor. To explore potential sources of misfit, modification indices were analyzed. A significant residual correlation was identified between items 4 ("There are times when I have strong feelings about cancer possibly returning") and 5 ("I think about cancer possibly returning even when I don't want to"). Both items address emotional and cognitive concerns related to the possibility of cancer recurrence. Specifically, item 4 emphasizes intense feelings about the potential recurrence, while item 5 highlights intrusive thoughts even when undesired. This thematic similarity reflects a shared psychological nature commonly associated with the fear of recurrence, which may lead to residual variance not fully explained by the general factor. Based on this evidence and previous literature, such as the study by Lee *et* al,[28] the residuals of items 4 and 5 were allowed to correlate in the adjusted model. This modification is theoretically justified as it respects the construct's coherence and improves the fit indices without compromising the scale's unidimensionality. The modified model showed a significant improvement in fit indices: $\chi^2(14) = 33.60$; $p = 0.001$; $\chi^2/df = 2.6$; RMSEA = 0.13; 95% CI [0.07 - 0.19]; CFI = 0.99; WRMR = 0.38. Although the RMSEA continued to indicate a mediocre fit, the values of χ^2/df, CFI, and WRMR suggested an overall satisfactory fit. The residual variance shared between items 4 and 5 allowed in the adjusted model was consistent with the theory and supported the construct validity of the adjusted model, despite the potential impact of the sample size on the RMSEA results. The standardized factor loadings of the item parcels are presented in Fig. 1.

Convergent and divergent validity

As expected, the FCR7 total score showed a moderate positive correlation with anxiety (r = 0.45, $p < 0.001$), confirming convergent validity. No significant correlation was found between FCR7 and depression. This confirms that the FCR construct is distinct from depression. As for the quality of life, only emotional functioning had a weak negative correlation with FCR (Table 4). No significant correlations were found with total QoL, physical functioning, and cognitive functioning, confirming divergent validity.

Receiver operating characteristic curve analysis

Following the Peng *et al*[47] procedure, AYAs were categorized into two groups according to their HADS anxiety scores: clinical levels of anxiety (scores ≥ 8) and non-clinical levels (scores < 8). Using these scores as a classification criterion, the area under the curve of the ROC analysis was 69% ($p < 0.003$; 95% CI = 0.581 - 0.793), suggesting an acceptable level of diagnostic accuracy (Fig. 2). A cut-off score for FCR7 of ≥ 19.5 (19/20) appeared to be the best score to differentiate individuals between clinically significant levels

Table 3 – Descriptive statistics: item properties and reliability

FCR7 items	Min. - Max.	Median	Skewness	Kurtosis	Corrected item-total correlation	Cronbach's alpha of item deleted
Item 1	1 - 5	4	-0.716	-0.319	0.760	0.872
Item 2	1 - 5	3	-0.255	-0.553	0.792	0.870
Item 3	1 - 5	3	-0.233	-0.634	0.832	0.866
Item 4	1 - 5	3	-0.084	-0.601	0.813	0.868
Item 5	1 - 5	3	0.063	-0.977	0.851	0.861
Item 6	1 - 5	3	-0.102	-0.974	0.416	0.905
Item 7	0 - 10	5	-0.121	-0.762	0.812	0.898

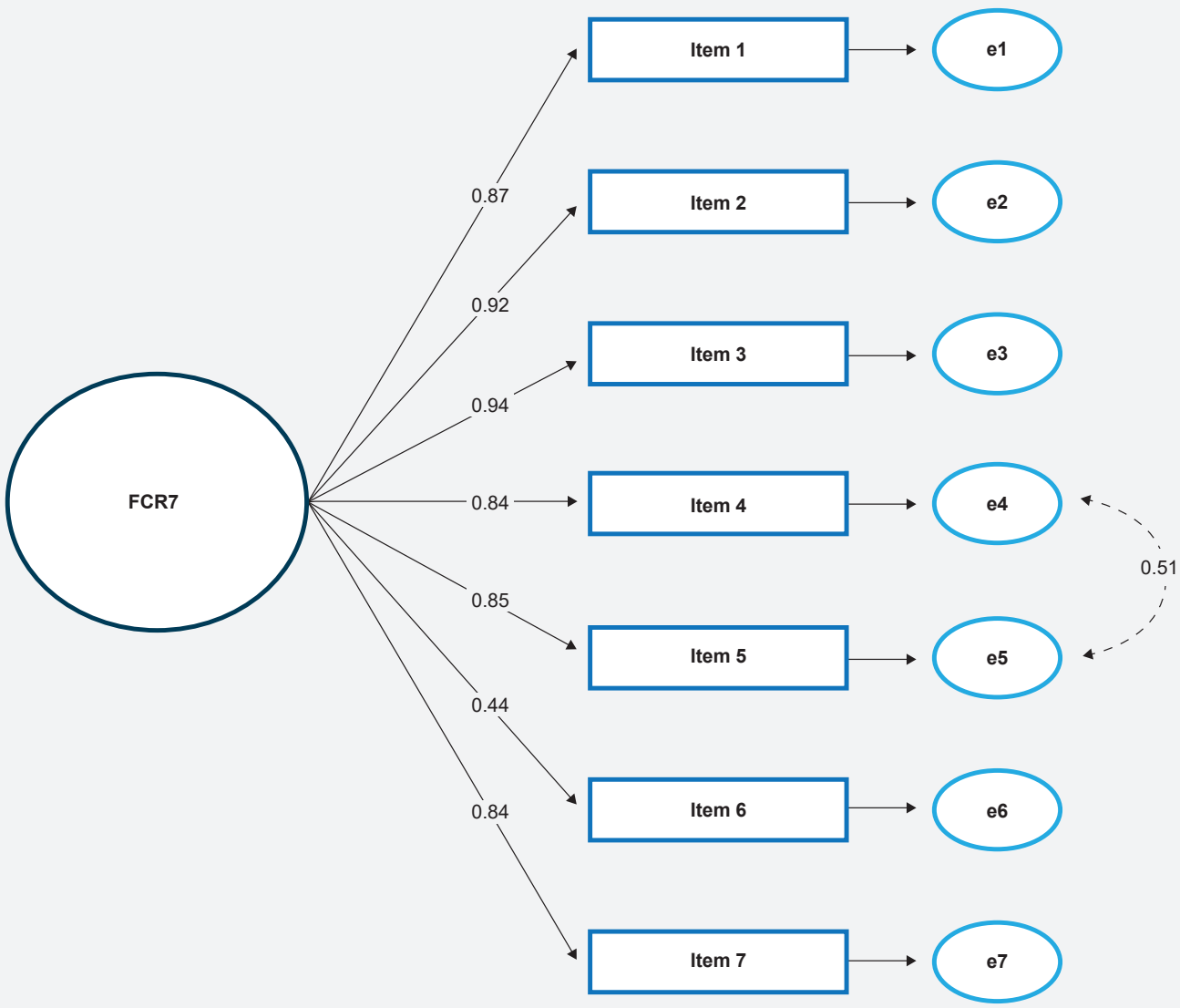

Figure 1 – Results of the confirmatory factor analysis for the Portuguese version of the FCR7

of FCR (FCR7 ≥ 20) and non-clinical levels (FCR7 ≤ 19), with a sensitivity of 77.2% and a specificity of 42.9% (PPV = 68.8%; NPV = 53.6%).

FCR levels

The FCR total score and levels of FCR were assessed. The total score shows that the mean severity for FCR among AYAs was 24.20. Considering a cut-off point of ≥ 20, 64 participants (69.6%) reported clinically significant levels of FCR, while only 28 participants (30.4%) reported non-clinical levels (Table 5).

DISCUSSION

This study's main aim was to validate the FCR7 scale for the Portuguese population of AYAs. We observed that FCR7 has a good model fit and reliability. Convergent and

Table 4 – Correlations for validity analysis

	Anxiety	Depression	Quality of life	Emotional functioning	Physical functioning	Cognitive functioning
FCR	0.45***	0.20	0.01	-0.33**	-0.18	-0.19

***: $p < 0.001$;
**: $p = 0.001$.

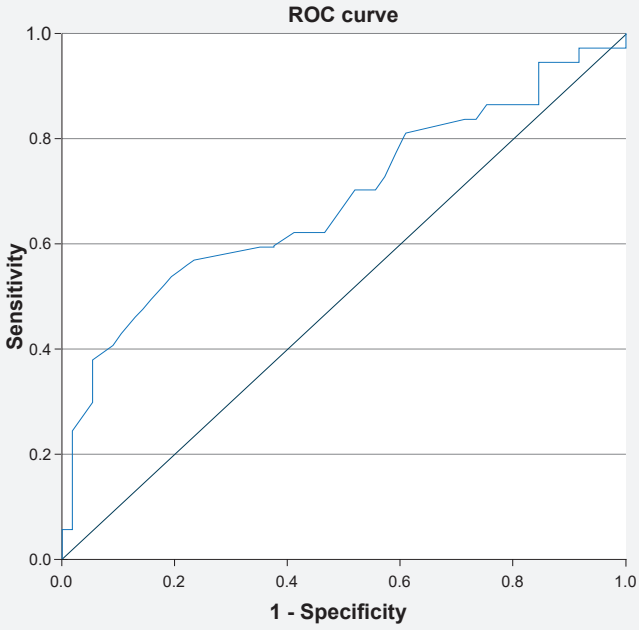

Figure 2 – Receiver operating characteristics (ROC) curve for the FC

divergent validity were also confirmed. This suggests that FCR7 is an excellent measure to assess FCR levels among Portuguese AYAs. Results also showed that almost 70% of the participants experienced clinically significant levels of FCR.

A good model fit was found for the FCR7 among Portuguese AYAs. These findings align with what was previously found with other versions of this scale.[24,25,27] The model fit was not perfect, but the results were acceptable after adjusting for modification indexes. As for the reliability analysis, the scale also showed good results. This concurs with previous studies focused on adults,[24,25,27] where good reliability was also found. These findings indicate that the FCR7 is reliable for assessing FCR levels among Portuguese AYAs with cancer. The unidimensionality of FCR7 was also confirmed since the scale showed good model fit and reliability results.

As expected, there were significant moderate correlations between anxiety and the FCR7 and moderate negative correlations between emotional functioning and FCR7. The previous validations of these scales found identical results,[24,25,27] supporting the good convergent validity of FCR7. In the literature, AYAs with high FCR levels were also found to experience high anxiety levels compared to AYAs with low FCR.[10] Regarding divergent validity, it was also confirmed. Although the total quality of life did not show a significant negative correlation with FCR as expected, the FCR7 scale did show a significant negative correlation with

Table 5 – Levels of FCR among Portuguese AYAs

FCR7	n	%	Range	Mean	SD
Total score			6 - 40	24.20	8.06
Non-clinical levels of FCR	28	30.4			
Clinical levels of FCR	64	69.6			

emotional functioning. This result is aligned with previous studies with AYAs, where a negative correlation between emotional functioning and FCR was also found.[49,50]

A cut-off score of 20 or higher was found to be indicative of clinically significant levels of FCR. Only the original version of the FCR7 scale has previously explored cut-off points for moderate and high levels of FCR. The authors have found that scores of 17 or higher indicated moderate levels of FCR, while scores of 27 or higher indicated high levels.[24] These cut-off scores are similar to the ones we found for clinical and non-clinical levels, supporting it.

The ROC analysis revealed a cut-off score of FCR7 ≥ 19.5 as the optimal threshold to differentiate between clinically significant and non-clinical levels of FCR, with an AUC of 69% ($p < 0.003$; 95% CI = 0.581 - 0.793). Our findings showed a sensitivity of 77.2% and specificity of 42.9%, indicating that this cut-off effectively identifies 77.2% of AYAs with clinical FCR (true positives) and 42.9% of AYAs without clinical FCR (true negatives). These results suggest that the cut-off score is more proficient in detecting positive cases of clinical FCR among AYAs than in accurately identifying negative cases. While these findings are promising, it is crucial to acknowledge that the specificity value is relatively low, which may result in a higher rate of false positives. Therefore, we recommend that future research should confirm these results with larger sample sizes and incorporate a gold standard measure, whenever feasible, to improve the robustness and diagnostic accuracy of the FCR7 cut-off point. Such validation would ensure stronger clinical utility and enhance the precision of FCR screening tools for AYAs.

It was also found that almost 70% of participants have clinically signficant levels of FCR. These results align with what has been found in the literature on AYAs.[10,21] Additionally, in the other validation articles of the FCR7 scale, adults with cancer experienced lower levels of FCR.[27,29] This aligns with the literature suggesting that AYAs experience higher FCR levels than older cancer patients and survivors.[3,7,8] In conclusion, these results suggest that FCR is an important concern among Portuguese AYAs.

Lastly, as reported by other studies,[52] PPI also helped improve this study. By involving cancer survivors and members of an association focused on young people with cancer before data collection, there was a chance to make the study more tailored and adequate for AYAs. Identifying difficulties in understanding some items of the FCR7 scale

also allowed for a better translation of the scale. Despite the positive effects, involving patients and the public also led to some delays in the project, requiring additional tasks and time from the research team. However, the benefits suppressed the challenges faced.

Some limitations can be pointed out. First, there is no gold standard measure to assess FCR, which limits the cut-off score analysis. Creating a gold standard measure for FCR would facilitate the establishment of cut-off scores among all the FCR measures. Second, the measures we used to assess anxiety and depressive symptoms, and quality of life were validated for adults only. Since our study included some participants under 18 years of age at recruitment, it is possible that these measures were not the most suitable for those participants. Our sample was also composed mostly of female participants and patients no longer in active treatment. One possible explanation is that these people are more willing to participate in research. However, this limits our understanding of the male population and those still in active treatment. Lastly, even though the sample size was adequate for the number of items on the FCR7 scale, a higher sample size could have provided more robust results.

A brief measure to assess FCR valid for AYAs in Portugal is an asset for national healthcare professionals and researchers. Healthcare professionals can now screen AYA cancer patients in clinical settings and refer patients with high FCR levels to receive psychological support. Evidence shows that FCR increases healthcare use and that FCR-focused interventions may be cost-effective.[51] Therefore, by adding FCR7 to clinical guidelines to identify AYAs with clinical FCR and referring them to psychological services to get the needed support, it is possible that it could have an economic impact by reducing costs. Researchers can also include FCR assessment more frequently in their research since the small number of items won't be an extra burden for participants. It can improve the identification of patients in need of psychological support and increase the literature on FCR, allowing us to understand it and its impact better.

CONCLUSION

This study is the first attempt to validate a scale to assess FCR levels among AYAs. Our preliminary results suggest that FCR7 is an adequate measure to assess FCR levels among Portuguese AYAs. Researchers all over the world should make efforts to validate scales to assess FCR among these young patients. This would improve the comparability of the results between studies and guarantee that the measure used to determine FCR levels is adequate for that specific population. Our study shows that the FCR7 scale is an excellent candidate to be validated by other researchers.

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AUTHOR CONTRIBUTIONS

MCN: Study design, literature review, study dissemination, data collection and analysis, writing of the manuscript.

CMDS, JBP, SM: Study design, supervision, critical review of the manuscript.

JO: Study dissemination, data collection.

AB: Data analysis, writing and critical review of the manuscript.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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Three Scales of Mental Health-Related Stigma: Additional Evidence on its Psychometric Properties in the Portuguese Population

Três Escalas sobre Estigma na Saúde Mental: Evidência Adicional das Propriedades Psicométricas para a População Portuguesa

Beatriz LOURENÇO✉[1], Ana MINA[2], Maria MORENO[2,3], Pedro MATEUS[4], Pedro AGUIAR[5], Teresa MAIA[5,6], Ana Rita GOES[5]
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ABSTRACT

Introduction: The aim of this study was to provide additional evidence on the psychometric properties in the Portuguese population of three stigma scales: Mental Health Knowledge Schedule (MAKS), Scaling Community Attitudes Toward the Mentally Ill 12 (CAMI-12), and Reported and Intended Behaviour Scale (RIBS).

Methods: A total of 3556 participants were recruited and completed the three scales online. The study includes confirmatory factor analysis, internal consistency analysis, test-retest reliability, convergent validity, and known-groups validity tests.

Results: The results suggest that the European Portuguese RIBS version appears to be a valid measure of stigma in the Portuguese population, as well as the CAMI-12 "Prejudice and Exclusion" subscale and a modified version of MAKS. The results corroborate the existing evidence of a positive correlation between mental health-related stigma and low educational status, as well as reduced contact with someone with mental illness.

Conclusion: The findings of this study contribute with additional evidence on the validity and reliability of the proposed European Portuguese versions of these three scales.

Keywords: Health Knowledge, Attitudes, Practices; Mental Disorders; Mental Health; Social Stigma; Validation Study

RESUMO

Introdução: Este estudo visou fornecer evidências adicionais sobre as propriedades psicométricas na população portuguesa de três escalas de estigma: *Mental Health Knowledge Schedule* (MAKS), *Scaling Community Attitudes Toward the Mentally Ill 12* (CAMI-12) e *Reported and Intended Behaviour Scale* (RIBS).

Métodos: Um total de 3556 participantes foram recrutados e completaram as três escalas online. O estudo inclui análise fatorial confirmatória, análise da consistência interna, teste-reteste, validade convergente e validade de grupos-conhecidos.

Resultados: Os resultados sugerem que a versão portuguesa do RIBS parece ser um instrumento válido de avaliação do estigma na população portuguesa, assim como a subescala "Preconceito e Exclusão" da CAMI-12 e uma versão modificada do MAKS. Os resultados corroboram as evidências existentes de uma correlação positiva entre estigma relacionado à saúde mental e baixo nível educacional, assim como contato reduzido com alguém com doença mental.

Conclusão: Os resultados deste estudo contribuem com evidência adicional das propriedades psicométricas das versões propostas destas três escalas.

Palavras-chave: Conhecimento, Atitudes e Práticas na Saúde; Estigma Social; Perturbações Mentais; Saúde Mental; Estudo de Validação

KEY MESSAGES

- Stigma is a complex phenomenon with a significant impact on people's lives and a relevant barrier to seeking mental health support.
- It is essential to have validated and culturally competent instruments to evaluate stigma in context.
- Mental Health Knowledge Schedule (MAKS), Scaling Community Attitudes Toward the Mentally Ill 12 (CAMI-12), and Reported and Intended Behaviour Scale (RIBS) are three scales that allow for a comprehensive evaluation of three different dimensions of stigma: knowledge, attitudes, and behavior.
- This study suggests that the European Portuguese version of RIBS appears to be a valid measure of stigma in the Portuguese population, as does the CAMI-12 "Prejudice and Exclusion" subscale, along with a modified version of MAKS.

1. Department of Health Strategies. NOVA National School of Public Health. Universidade NOVA de Lisboa. Lisbon. Portugal.
2. Manifestamente: iniciativa cidadã pela Saúde Mental. Lisbon. Portugal.
3. Lisbon Department. Centro Hospitalar Psiquiátrico de Lisboa. Unidade Local de Saúde São José. Lisbon. Portugal.
4. Department of Medical Education. Faculty of Medicine. Universidade Católica Portuguesa. Lisbon. Portugal.
5. Comprehensive Health Research Center (CHRC). NOVA National School of Public Health. Universidade NOVA de Lisboa. Lisbon. Portugal.
6. Psychiatric Department. Hospital Prof. Doutor Fernando da Fonseca. Unidade Local de Saúde Amadora/Sintra. Amadora. Portugal.
✉ **Autor correspondente:** Beatriz Lourenço. bgr.lourenco@ensp.unl.pt
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INTRODUCTION

Stigma is a complex and heterogeneous concept. It can be defined as a process that occurs when a feature – a 'mark' – is considered undesirable and deeply discrediting, based on negative stereotypes and prejudices, leading to inequality of opportunities and discrimination against people or groups.[1,2]

Mental health-related stigma and discrimination are a worldwide concern, with different expressions across cultures. Stigma operates at various levels: individually, within families, across healthcare systems and providers, and in society in general. Cultural beliefs, etiological attributions of mental illness and social perceptions will shape the manifestation of mental health-related stigma and its implications. In African cultures, mental illness is frequently attributed to supernatural causes, mostly viewed as malignant, blocking appropriate treatment-seeking behavior. In South American cultures, mental illness is often conceptualized as personal weakness or lack of willpower, contributing to erroneous social perceptions of mental illness. In western cultures, although mental illness is currently well established as a health issue, it is frequently associated with unpredictability and dangerousness, dictating lack of understanding and empathy from others, and leading to social exclusion.[3]

People with mental illness often experience reduced wellbeing and life opportunities, evidenced by how stigma is associated with impaired access to mental health services and physical health care, premature mortality, victimization, harassment, social exclusion and discrimination in settings including education, employment, and housing.[1] One fundamental consequence relates to the person's effort not to be labeled as mentally ill, thus avoiding and delaying access to essential care.[4] Many people describe the consequences of stigma and discrimination as worse than the experience of the mental illness itself and stigma is increasingly recognized as a significant public health concern.[5,6]

The causes of mental health-related stigma are various and intricate, where the lack of understanding and fear most certainly play a role. There are some factors that are known to correlate with higher levels of stigma, such as a low education level and reduced contact with people with mental illness.[7] Interventions that promote direct and positive interaction with people with mental illness have shown robust evidence of beneficial impact in the mitigation of stigma, probably mediated by familiarity.[8] In fact, contact and educational interventions are considered the best practices in the field of anti-stigma programs.[9]

Assessing stigma towards people with mental illness allows the monitoring of public stigma as well as the evaluation of interventions. Different scales and instruments have been developed for measuring stigma and its various dimensions.[10] Thornicroft *et al* (2007) point out three fundamental domains of stigma: I) the problem of knowledge (literacy); II) the problem of attitude (prejudice); and III) the problem of behavior (discrimination).[11] Three instruments were developed specifically to assess each one of these domains of stigma: Mental Health Knowledge Schedule (MAKS)[12]; Scaling Community Attitudes Toward the Mentally Ill (CAMI)[13]; and Reported and Intended Behaviour Scale (RIBS).[14] These scales have been used to monitor public stigma[15,16] as well as to assess the impact of anti-stigma programs worldwide.[17,18] The CAMI scale is considered the gold standard measure for assessing stigma towards people with mental disorders.[19] These instruments have been translated into several languages: Spanish,[20] French,[21] Italian,[22] Hungarian,[23] Brazilian Portuguese,[24,25] and European Portuguese.[26-28]

Although studies concerning equivalent versions of these instruments in the Portuguese population exist, none have simultaneously used all three instruments, which we believe reflect more accurately Thornicroft's three-dimensional concept of stigma (knowledge, attitudes, and behavior). This study aimed to provide additional evidence on the psychometric properties of these three instruments in the Portuguese population.

METHODS

Selection of participants

We recruited a convenience sample of Portuguese people over 18 years of age. The study was advertised through the social media accounts of the Lisbon based non-governmental organization "Manifestamente" as part of an anti-stigma campaign. A total of 3556 participants filled in the online questionnaires between October 2020 and October 2021.

The study protocol was approved by the Ethics Committee of the Administração Regional de Saúde de Lisboa e Vale do Tejo (Proc. 047/CES/INV/2020). All data was collected electronically through online questionnaires. The results were pseudonymized: each participant was randomly assigned a numerical code, and their email was hidden from the research team.

Measures

Sociodemographic questionnaire

Background information from participants was collected using a general questionnaire, which included gender (female, male, other), age, marital status (single, married/cohabitant, divorced, widowed, other), education level (primary school, middle school, secondary school, bachelor, master and doctorate), professional situation (student, employed, unemployed, retired), professional field (health, mental health, other) and district of residence .

Mental Health Knowledge Schedule

The MAKS measures mental health knowledge-related stigma in the general population and it can be used to evaluate anti-stigma interventions. It is a 12-item questionnaire composed of two sections: 1) six items covering knowledge related to help-seeking behavior, acknowledgment, support, work, treatment, and recovery; 2) six items that examine the classification of different conditions as mental illness. The authors designed this instrument according to evidence from previous studies and expert consultations. The items were intended to represent types of knowledge that might potentially influence mental health-related attitudes and behaviors. Items 7 to 12 were formulated as closed questions instead of traditional *vignettes*, for better assessment of factual information.[12]

The items are rated on a 5-point Likert scale, going from "strongly disagree" (i.e., 1 point) to "strongly agree" (i.e., 5 points). The answer "I don't know" was coded as neutral (i.e., 3 points) to determine the total score. Items 6, 8, and 12 are reverse coded. The total score is calculated by summing the ratings of all 12 items. A higher total score corresponds to greater knowledge (less knowledge related stigma).

In previous studies, validity was supported via extensive review by experts (including service users and international experts in stigma research). The MAKS showed an overall test-retest reliability of 0.71 using Lin's concordance statistic and a moderate overall internal consistency of 0.65 for items 1 to 6. A European Portuguese version of the MAKS was validated with a sample of patients by Camarneiro *et al* and obtained a Cronbach's α of 0.285.[26]

Because the MAKS is designed to measure a heterogeneous group of items and is not developed as a homogeneous scale, high internal consistency is not expected. The α should only be used to interpret result trends. The MAKS should be used in conjunction with attitude and behavior-related instruments.[12]

Community Attitudes Toward the Mentally Ill

The CAMI scale assesses community attitudes towards people with mental illness in the general population. The original version is composed of 40 items and assesses four dimensions (authoritarianism, benevolence, social restriction, and ideology). It was partially based on a version of the Opinions About Mental Illness Scale.[13]

Two other distinct versions were developed, composed of 26 and 12 items, respectively. Both versions present a two-factor structure: prejudice and exclusion, and tolerance and support towards people with mental disorders.[17]

In this study we used the 12-item version (CAMI-12) for practical reasons. The answers were rated on a 5-point Likert scale going from "strongly disagree" (i.e., 1 point) to "strongly agree" (i.e., 5 points). The overall score corresponds to the sum of the 12 items' ratings and higher overall scores correspond to less stigmatizing attitudes.

In an extensive systematic review, the CAMI scale showed a satisfactory global internal consistency (α ≥ 0.80 - between 0.60 and 0.90), that was not found in the subscales.[19] There is a European Portuguese version of CAMI-27[27] and a Brazilian Portuguese version of CAMI-40[24] that obtained a Cronbach's α of > 0.60 and 0.84, respectively.

Reported and Intended Behaviour Scale

The RIBS is an instrument based on the Star Social Distance Scale that measures discriminatory mental health-related behaviors in the general population.[14] The scale is composed of two sections, each one comprising four items. The first group evaluates reported behavior in past or present experiences with people with a mental health problem. The second group assesses future intentions to establish contact with people with a mental health problem. The overall score is calculated by adding the points obtained in the second section (items 5 - 8). These answers are coded into a Likert scale going from "strongly disagree" (i.e., 1 point) to "strongly agree" (i.e., 5 points). The answer "I don't know" is coded as neutral (i.e., 3 points). Higher scores correspond to more favorable intended behaviors.

In the original studies, the RIBS demonstrated an overall moderate test-retest reliability and substantial internal consistency (Cronbach's α = 0.85). Strong consensus validity was found, as rated by service users/consumers and international experts in stigma research.[14]

A Brazilian Portuguese version of the RIBS obtained a 0.75 Cronbach's α.[25]

Translation process

The European Portuguese versions of the three scales were developed based on "Guidelines for IOP Stigma Scales Translation, Back-translation, and Concept Checking"[29,30]:

1) An English fluent native Portuguese speaker translated the three questionnaires into European Portuguese (PT version).
2) The PT version of the questionnaire was back-translated into English by an independent English native speaker who was fluent in Portuguese (EN-BT version).
3) To assess comprehensibility and face validity of the translated questionnaire items (PT version), a focus group was conducted, with eight community recruited volunteers. No changes were suggested.
4) The final step, to assess the content validity, was the comparison of the three versions (original EN, PT version, and EN-BT version) by a group of experts.

Minor changes were suggested to the PT version, thus creating the final version the participants were asked to fill in.

Statistical analysis

All statistical tests were two-tailed and a significance level was set at 0.05. We used the IBM SPSS Statistics version 28 for advanced statistical analysis and Jamovi 2.3.28 Solid for confirmatory factor analysis (CFA). Variables were described using descriptive statistics: absolute and relative frequencies were computed for nominal variables and central tendency measures for numeric variables.

The original MAKS two-factor model proposed by the authors[12] was compared with alternative models: a one-factor model and a modified two-factor model (excluding items 1, 6, 8 and 12) proposed by the French validation study.[21] The original CAMI-12 two-factor model proposed by the authors[17] was compared with a one-factor model. The original RIBS one-factor model[14] was tested. The following fit indices were selected to assess the goodness-of-fit of the model: the Standardized Root Mean Square Residual (SRMR), the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI). Acceptable model fit was indicated by CFI and TLI values higher than 0.90; and RMSEA and SRMR values below 0.08.[31]

The reliability of the scales was conducted through internal consistency analysis using Cronbach's α, and McDonald's *ω* coefficient, and test-retest reliability.

Cronbach's α value above 0.90 indicates excellent internal consistency, above 0.80 good consistency, above 0.70 acceptable, above 0.60 questionable, above 0.50 poor and below 0.50 the internal consistency is unacceptable.[32] However, in some social science research scenarios, an α of 0.60 is considered acceptable as long as the results obtained with this instrument are interpreted with caution and have the context of the coefficient computing into account.[33] Above 0.7 *ω* internal consistency values were considered acceptable.[34] Test-retest reliability was evaluated over a two-week period in a subsample of 27 participants, using the intraclass correlation coefficient (ICC), a two-way random-effect model and the absolute agreement definition. Intraclass correlation coefficients below 0.5 were considered to indicate weak reliability, between 0.50 and 0.75 moderate, between 0.76 and 0.90 good, and above 0.9 excellent reliability.[35]

The validity of the scales was evaluated through analysis of convergent validity and known-groups validity.

Convergent validity was explored through the analysis of the correlation between the three instruments (Pearson's correlation) and the correlation with educational level (Spearman's correlation). We followed Evans (1996) suggestion for the absolute value of *r*, considering it as follows: 0.00 - 0.19 'very weak'; 0.20 - 0.39 'weak'; 0.40 - 0.59 'moderate'; 0.60 - 0.79 'strong'; 0.80 - 1.0 'very strong'.[36]

Data regarding the educational level was collected into six ordinal categories: primary school (category 1), middle school (category 2), secondary school (category 3); bachelor (category 4), master (category 5) and doctorate (category 6). We simplified this variable into another called "education", in which participants who had primary school (category 1), middle school (category 2) and secondary school (category 3) education were grouped into the "compulsory education" category, and participants who had bachelor (category 4), master (category 5) and doctorate (category 6) degrees were grouped into the "higher education" category. Independent samples t-tests were performed to explore the effect of education on stigma.

Known-groups validity was assessed based on proximity with someone with mental illness.[37]

Proximity with someone with a mental illness was evaluated via RIBS' question number 4 ("Do you currently have, or have you ever had, a close friend with a mental health problem?*")*. Participants who answered "yes" to RIBS' question number 4 were placed into group 1 of "Proximity with someone with mental illness" variable and participants who answered "no" were placed into group 2. Participants who answered "I don't know" were coded as missing. Independent sample t-tests were performed to explore the effect of proximity with someone with mental illness on these three instruments.

We used Cohen's *d* as an effect size measure for independent samples t-tests. Cohen's guidelines were followed regarding its interpretation: 'small' (*d* = 0.2), 'medium' (*d* = 0.5), and 'large' (*d* = 0.8) effect size.[38]

RESULTS

Sample characteristics

The sample was composed of 3556 participants. The mean age was 37 years old, 55.6% of the participants were single, 68.7% had higher education, 63.3% were employed and 56.6% worked in a field other than healthcare, as shown in Table 1.

Confirmatory factor analysis

Fit indices for the different factor models of MAKS, CAMI-12 and RIBS are presented in Table 2.

For the MAKS, Model 1 corresponds to the one-factor model; Model 2 corresponds to the original two-factor model and Model 3 corresponds to a two-factor model without items 1, 6, 8 and 12, as validated by the French validation study. Confirmatory factor analysis results showed that Model 1 and Model 2 did not provide any reasonable fit indicators. Model 3 had a better fit when compared to the

Table 1 – Sample characteristics

Age n = 3217	Mean (SD): 37 (± 12) Min - max: 18 - 83 Missing: 339
Marital status n = 3556	Single: 1977 (55.6%) Married/Cohabitant: 834 (23.2%) Divorced: 181 (5.1%) Widowed: 18 (0.5%) Other: 51 (1.4%)
Education level n = 3556	Primary school: 2 (0.1%) Middle school: 104 (2.9%) Secondary school: 1008 (28.3%) Bachelor: 1510 (42.5%) Master: 861 (24.2%) Doctorate: 71 (2.0%)
Professional situation n = 3556	Unemployed: 547 (15.4%) Employed: 2254 (63.3%) Retired: 59 (1.7% Student: 696 (19.6%)
Professional field n = 3509	Health: 677 (19.3%) Mental health: 846 (24.1%) Other: 1986 (56.6%) Missing: 47
MAKS n = 3556	Mean (SD): 47 (± 4.6) Min - max: 25 - 60 Mean percentage of anti-stigma of 0.63
CAMI-12 n = 3556	Mean (SD): 48 (± 5.9) Min - max: 27 - 60 Mean percentage of anti-stigma of 0.63
RIBS n = 3556	Mean (SD): 17 (± 2.8) Min - max: 4 - 20 Mean percentage of anti-stigma of 0.81

other models and complied with recommended cutoff values regarding SRMR, RMSEA, and CFI, although TLI was marginally acceptable. The modified two-factor model structure solution, from now on designated as MAKS-8, was retained for reliability and validity analysis.

For the CAMI-12 scale, Model 1 corresponds to a one-factor model and Model 2 comprises the original two-factor model, proposed by the CAMI-12 authors. Model 1 did not provide reasonable fit indicators. Model 2 showed a reasonable fit regarding SRMR and RMSEA, but CFI and TLI values were marginally acceptable. The two-factor model structure solution was retained for reliability and validity analysis.

For the RIBS, we tested the one-factor model, the original structure proposed by the authors. Confirmatory factor analysis results showed reasonable fit and complied with recommended cutoff values regarding SRMR, CFI and TLI. RMSEA values were marginal.

All the standardized factor loadings of the models retained were statistically significant [Appendix 1, Table 1 (Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22377/15611)]. The loadings of the items included in MAKS-8 ranged from 0.223 to 0.544; the loadings for the items included in CAMI-12 ranged from 0.266 to 0.697 and the loadings for the items included in RIBS ranged from 0.461 to 0.745.

Internal consistency

As shown in Table 3, Cronbach's α and the McDonald's *ω* coefficient of the MAKS-8 cannot be considered acceptable. The level of internal consistency was even lower when we analyzed the MAKS-8 subscales separately.

The Cronbach's α for the CAMI-12 scale was 0.641 indicating a questionable level of internal consistency and the McDonald's *ω* coefficient was 0.610, indicating an unacceptable level. When we analyze the subscales of CAMI-12 separately, the subscale "Prejudice and Exclusion" has acceptable internal consistency when it comes to both coefficients, as opposed to the subscale "Tolerance and Support" which fails to achieve an acceptable result.

The Cronbach's α for the RIBS was 0.87 and the McDonald's *ω* coefficient was 0.89, indicating good andacceptable levels of internal consistency, respectively.

Table 2 – Confirmatory factor analysis

Model	χ^2	df	*p*-value	SRMR	RMSEA	CFI	TLI
MAKS							
Model 1: One-factor model	3700	54	< 0.001	0.109	0.138	0.453	0.331
Model 2: Two-factor model	3437	53	< 0.001	0.108	0.134	0.492	0.367
Model 3: Modified two-factor model[a]	333	19	< 0.001	0.0456	0.0682	0.922	0.885
CAMI-12							
Model 1: One-factor model	1698	54	< 0.001	0.706	0.0888	0.700	0.634
Model 2: Two-factor model	931	53	< 0.001	0.0501	0.0683	0.840	0.801
RIBS							
One-factor model	49.6	2	< 0.001	0.0138	0.0818	0.994	0.982

[a]: without items 1, 6, 8, 12.
χ^2: Chi-Square; df: degrees of freedom; SRMR: Standardized Root Mean Square Residual; RMSEA: Root Mean Square Error of Approximation; CFI: Comparative Fit Index; TLI: Tucker Lewis Index

Table 3 – Internal consistency

	Items	Cronbach's α coefficient	McDonald's *ω* coefficient
MAKS-8	8	0.571	0.555
Modified Subscale I[a]	4	0.518	0.522
Modified Subscale II[b]	4	0.461	0.428
CAMI-12	12	0.641	0.610
Prejudice and Exclusion Subscale	6	0.708	0.706
Tolerance and Support Subscale	6	0.521	0.532
RIBS	4	0.870	0.880

[a]: without items 1 and 6
[b]: without items 8 and 12

Test-retest reliability

Test-retest reliability measured with an intra-class correlation in a subsample of 27 participants over a period of two weeks suggests that the MAKS-8, CAMI-12 and RIBS scales have good stability, as shown in Table 4.

Convergent validity

Correlations between scales

A Pearson correlation coefficient was computed to assess the linear relationship between the three scales [Appendix 1, Table 2 (Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22377/15611)]. We found statistically significant positive, but weak, correlations between the MAKS-8 and the CAMI-12 scales ($r = 0.325$, $p < 0.001$) and between the MAKS-8 and the RIBS ($r = 0.371$, $p < 0.001$). The correlation is moderate between the CAMI-12 scale and RIBS ($r = 0.427$, $p < 0.001$).

Correlations with educational level

Using Spearman's correlation, we found statistically significant positive, but low magnitude, correlations between the educational level and each one of the three instruments, suggesting that higher educational levels are associated with greater knowledge [MAKS-8: $r(3554) = 0.136$, < 0.001], less stigmatizing attitudes [CAMI-12: $r(3554) = 0.201$, < 0.001] and more favorable behaviors [RIBS: $r(3554) = 0.036$, < 0.05] [Appendix 1, Table 3 (Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/22377/15611)].

Merging the first three categories of the variable "educational level" (primary school, middle school and secondary school), in one group designated as "compulsory education", and the last three categories (bachelor, master and doctorate) in another group, designated "higher education", we obtained a simplified variable, designated as "Education".

Analyzing this new variable using an independent t-test, we found statistically significant differences of small effect size between the means of MAKS-8 and CAMI-12, as shown in Table 5. The results indicate that participants with "higher education" showed greater knowledge and less stigmatizing attitudes, when compared to participants with "compulsory education", in these two scales. Although the "higher education" group also had a higher mean in the

Table 4 – Test-retest reliability

	n	ICC	95% CI	*p*-value
MAKS-8	27	0.847	0.668 - 0.930	< 0.001
CAMI-12	27	0.777	0.507 - 0.899	< 0.001
RIBS	27	0.843	0.654 - 0.928	< 0.001

ICC: intra-class correlation using a two-way random-effects model and the absolute agreement definition; CI: confidence interval

Table 5 – Comparison between compulsory and higher education

	Education	n	Mean (± SD)	*t*	*p*-value	Cohen's *d*	95% CI (*d*)
MAKS-8	1 - Compulsory	1114	32.86 (± 3.710)	-7.538	< 0.001	-0.273	[-0.344, -0.201]
	2 - Higher	2442	33.84 (± 3.555)				
CAMI-12	1 - Compulsory	1114	46.30 (± 6.029)	-12.528*	< 0.001	-0.465	[-0.537, -0.394]
	2 - Higher	2442	48.97 (± 5.608)				
RIBS	1 - Compulsory	1114	17.27 (± 2.856)	-0.853	0.394	-0.031	[-0.102, 0.040]
	2 - Higher	2442	17.36 (± 2.801)				

*: Equal variances not assumed
SD: standard deviation; *t:* t statistic (independent t-test)

RIBS than the "compulsory education" group, the difference was not statistically significant.

Known-groups validity

To analyze the known groups validity, we used the variable proximity with someone with mental illness.

The comparison of the instruments results' means of two groups, participants with and without proximity to someone with mental illness, are shown in Table 6. We found that participants with proximity to someone with mental illness showed a higher level of knowledge, less stigmatizing attitudes and more favorable behaviors, of small effect size, towards people with mental illness, than the others.

DISCUSSION

Mental health-related stigma has a strong impact on people experiencing mental illness. The development and study of valid instruments for evaluating different dimensions of mental health-related stigma is essential for socio-behavioral assessment, as well as for the evaluation of anti-stigma interventions. This study was meant to provide additional evidence on the psychometric properties of three scales of stigma. The results obtained confirm the validity and reliability of the proposed European Portuguese version of the RIBS and an alternative modified version of MAKS is suggested for the Portuguese population. The CAMI-12 results were mixed.

Regarding the MAKS, the CFA of the different models suggests that a modified two-factor model might be the most suitable for the European Portuguese version when compared with alternative factorial solutions. The modified two-factor model implies the removal of items 1 ("Most people with mental health problems want to have paid employment."), 6 ("Most people with mental health problems go to a healthcare professional to get help."), 8 ("Stress") and 12 ("Grief"), from the original version, similarly to the French version.[21] The internal consistency level of the MAKS-8 scale and its subscales separately was considered poor or not acceptable, although higher than the one reported in some studies.[26,39] The fact that previous studies also found low internal consistency suggests that this result may not be due to our sample's specificity but to the items' content. As stated above, the MAKS scale evaluates a very heterogeneous set of questions regarding different areas of knowledge. There is evidence that mental health knowledge-related stigma is multidimensional and that the correct endorsement of some items does not ensure correct knowledge regarding other items. This is reflected in the statistics assessing internal consistency. The MAKS-8 scale showed a strong test-retest reliability, even higher than in the original study.[11] Overall, the MAKS-8 scale results were mixed, but mainly unacceptable based on the recommendations.

The CFA results indicate that the original two-factor model of the CAMI-12 scale might be the most adequate for the European Portuguese version. Previous research showed that the items of the CAMI considerably varied in their allocation among studies, raising questions regarding the quality of items. Regarding internal consistency, the results of the CAMI-12 scale were mixed, in line with most of the studies and also the European Portuguese version of the CAMI-27.[27] The results of the "Tolerance and Support" subscale were unacceptable, while the "Prejudice and Exclusion" subscale results were acceptable. The CAMI-12 scale showed moderate test-retest reliability, similar to other studies, including the Brazilian Portuguese CAMI-40 version.[24]

For the RIBS, the CFA results confirmed the original structure proposed by the authors: the one-factor model. The RIBS obtained a good level of internal consistency, in agreement with the original study[14] and higher than the one found for the Brazilian Portuguese version.[25] The RIBS showed moderate test-retest reliability, similar to other studies.[23]

All the correlations tested in the validity analysis occurred in the hypothesized direction.

The three scales showed a positive, though weak, correlation, suggesting that these scales measure distinct dimensions of mental health-related stigma, which are also positively correlated.[21]

As anticipated, the MAKS-8, CAMI-12 and RIBS scores

Table 6 – Proximity with someone with mental illness (independent t-test)

	Proximity with someone with mental illness	n	Mean (± SD)	*t*	*p*-value	Cohen's *d*	95% CI (*d*)
MAKS-8	1 - Yes	2567	33.94 (± 3.514)	7.392*	< 0.001	0.342	[0.255, 0.429]
	2 - No	634	32.72 (± 3.770)				
CAMI-12	1 - Yes	2567	48.74 (± 5.749)	8.212	< 0.001	0.364	[0.277, 0.452]
	2 - No	634	46.64 (± 5.889)				
RIBS	1 - Yes	2567	17.67 (± 2.673)	8.615*	< 0.001	0.407	[0.320, 0.495]
	2 - No	634	16.56 (± 2.974)				

*: Equal variances not assumed
SD: standard deviation; *t:* t statistic

were weakly and positively associated with educational level, supporting the evidence that higher levels of education are associated with greater knowledge, less stigmatizing attitudes, and more favorable behaviors.[40,41]

Individuals with lower education backgrounds showed a higher tendency to avoid people with mental illness and to have more negative attitudes towards mental health problems, whereas individuals with higher education tended to be less authoritarian and less socially restrictive towards people with mental illness. It is postulated that education can help an individual become better informed and support the development of ethics that improve their attitudes towards mental illness.[42]

Our investigation was able to determine that participants with compulsory education exhibited more knowledge and attitude-related stigma when compared to participants with higher education. They also reported more behavior-related stigma, although not statically significant.

Known-groups validity was assessed based on proximity with someone with mental illness. Research suggests that people who are familiar with someone with mental illness are less likely to show stigmatizing attitudes. On the other hand, the lack of familiarity with mental illness (mediated by fear and perceptions of dangerousness and unpredictability) frequently leads to social distance, as some studies suggest.[43]

Proximity with someone with mental illness was assessed by RIBS' question number 4 ("Do you currently have, or have you ever had, a close friend with a mental health problem?"*)*. The results showed it was significantly associated with higher scores on the MAKS-8, CAMI-12 and RIBS scales, implying greater knowledge, less stigmatizing attitudes, and more favorable behaviors. These results corroborate the existing evidence of a positive correlation between mental health-related stigma and reduced contact with people with mental illness.[7]

This study presents some limitations. First, the analysis was based on an online recruited convenience sample, which can limit the generalizability of the results. Second, the sample predominately comprised individuals with higher education, who might be more motivated to answer the questionnaire than the general population and may present better literacy in these domains. Third, although people's self-report on mental health-related stigma can be valid and trustworthy, we cannot disregard the social desirability bias. Fourth, this is a cross-sectional study, not allowing causal inferences. Fifth, it is important to notice that cross-cultural assessments and validation studies may have challenges due to cultural and linguistic differences or even methodological issues. There are cultural variations between Portugal, Brazil, and other Portuguese-speaking countries, as well as substantial oral disparities. Despite the standardization of the orthography in Portuguese-speaking countries, the present study concerns exclusively to Portugal.

CONCLUSION

The findings of this study contribute with additional evidence on the validity and reliability of the proposed European Portuguese version of the RIBS. It appears to be a valid and reliable instrument to measure stigma and suggest the tool is appropriate for measuring stigma in the Portuguese population.

In an effort to optimize adequacy for the Portuguese population, an alternative modified version of the MAKS is suggested. The MAKS-8 showed mixed results, in line with previous studies[24,26,27,39] and caution is suggested when using composite scores from this measure given the specificities of mental health knowledge. For the CAMI-12, our data support the use of the subscale "Prejudice and Exclusion".

Despite the acknowledged value of measuring mental health stigma using a three-dimensional approach, the additional evidence on the psychometric properties of the European Portuguese version of these three instruments suggests the need for additional research to propose refined sets of items for measuring knowledge and attitudes, which allow cross-cultural comparisons.

AUTHOR CONTRIBUTIONS

BL: Conceptualization, methodology, investigation, data curation, formal analysis, writing – original draft, writing – review and editing.

AM, MM: Conceptualization, methodology, investigation.

PM, TM: Writing – review and editing.

PA: Formal analysis.

ARG: Formal analysis, writing – review and editing.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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Performance of ChatGPT in the Portuguese National Residency Access Examination

Desempenho do ChatGPT na Prova Nacional de Acesso

Gonçalo FERRAZ-COSTA✉*[1,2,3], Mafalda GRINÉ*[1,3], Manuel OLIVEIRA-SANTOS[1,3,4], Rogério TEIXEIRA[1,2,4]
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ABSTRACT

ChatGPT, a language model developed by OpenAI, has been tested in several medical board examinations. This study aims to evaluate the performance of ChatGPT on the Portuguese National Residency Access Examination, a mandatory test for medical residency in Portugal. The study specifically compares the capabilities of ChatGPT versions 3.5 and 4o across five examination editions from 2019 to 2023. A total of 750 multiple-choice questions were submitted to both versions, and their answers were evaluated against the official responses. The findings revealed that ChatGPT 4o significantly outperformed ChatGPT 3.5, with a median examination score of 127 compared to 106 (p = 0.048). Notably, ChatGPT 4o achieved scores within the top 1% in two examination editions and exceeded the median performance of human candidates in all editions. Additionally, ChatGPT 4o's scores were high enough to qualify for any specialty. In conclusion, ChatGPT 4o can be a valuable tool for medical education and decision-making, but human oversight remains essential to ensure safe and accurate clinical practice.

Keywords: Artificial Intelligence; Clinical Competence; Educational Measurement; Internship and Residency; Portugal

RESUMO

O ChatGPT, um modelo de linguagem desenvolvido pela OpenAI, foi testado em vários exames de acesso à profissão médica. Este estudo tem como objetivo avaliar o desempenho do ChatGPT na Prova Nacional de Acesso à Formação Especializada, um exame obrigatório para o início do internato médico em Portugal. O estudo compara especificamente as capacidades das versões 3.5 e 4o do ChatGPT em cinco edições do exame, de 2019 a 2023. Um total de 750 perguntas de escolha múltipla foram submetidas a ambas as versões, e as suas respostas foram avaliadas em comparação com as respostas oficiais. Os resultados revelam que o ChatGPT 4o superou significativamente o ChatGPT 3.5, com uma pontuação mediana de 127 em comparação com 106 (p = 0,048). Notavelmente, o ChatGPT 4o obteve pontuações dentro do *top* 1% em duas edições do exame e superou o desempenho mediano dos candidatos humanos em todas as edições. Além disso, as pontuações do ChatGPT 4o foram suficientemente elevadas para se qualificar para qualquer especialidade. Em conclusão, o ChatGPT 4o pode ser uma ferramenta valiosa para a educação médica e tomada de decisões, mas a supervisão humana continua a ser essencial para garantir uma prática clínica segura e precisa.

Palavras-chave: Avaliação Educacional; Competência Clínica; Inteligência Artificial; Internato e Residência; Portugal

INTRODUCTION

Artificial intelligence (AI) has seen rapid advancements, notably with the development of sophisticated large language models like ChatGPT, a tool that has demonstrated potential across diverse fields, including healthcare and education.[1] ChatGPT, developed by OpenAI, is a web-based language model that became widely accessible in 2022.[1] Since then, researchers have been assessing its capabilities in various settings, including its proficiency in answering medical licensing examination questions.[2,3] Multiple versions of ChatGPT have been released, each with improved capacities: ChatGPT-3.5, which operates solely on text-based inputs, and ChatGPT-4o, which includes the additional capability of processing images, enhancing its potential for answering complex questions.[4]

Previous studies have investigated ChatGPT's worldwide performance in medical licensing examinations, reporting mixed results. A recent systematic review and meta-analysis, for instance, examined 45 studies and found that ChatGPT-4o attained an average performance of 81% (95% CI: 78% - 84%), which was significantly higher than ChatGPT-3.5's average of 58% (95% CI: 53% - 63%).[2] This marked improvement suggests that each version of ChatGPT is becoming increasingly competent in specialized domains, such as medicine.

The Portuguese National Residency Access Examination (*Prova Nacional de Acesso*, or PNA) is a high-stakes, competitive examination required for medical graduates in Portugal to access residency programs.[5] Since 2019, the PNA has consisted of 150 multiple-choice questions with a single best-answer format, covering clinical, diagnostic, therapeutic, and epidemiological knowledge, presented as clinical vignettes. Candidates have 240 minutes, divided into two 120-minute sessions, to complete the examination. Approximately 2200 to 2500 candidates take the PNA each year, with scores determining eligibility for residency placements. To date, no study has evaluated ChatGPT's performance on the PNA.

This study aims to evaluate ChatGPT's performance on

* Shared co-authorship.
1. Cardiology Department. Unidade Local de Saúde de Coimbra. Coimbra. Portugal.
2. Faculdade de Medicina. Universidade de Coimbra. Coimbra. Portugal.
3. Coimbra Institute for Clinical and Biomedical Research (iCBR). Coimbra. Portugal
4. Digital Health Study Group, Sociedade Portuguesa de Cardiologia. Lisboa. Portugal.
✉ **Autor correspondente:** Gonçalo Costa. gnfcosta.93@gmail.com
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the PNA, specifically comparing ChatGPT-3.5 and ChatGPT-4o across five examination editions (2019 - 2023) and assessing their potential to match into different medical specialties alongside human candidates.

METHODS

Procedures

For this study, we used the ChatGPT Plus plan, which provides access to both models without the usage restrictions of the free version. While the plan allows up to 80 interactions per 3-hour session, the examinations were divided into two sessions of 75 questions each in the same chat window for each examination.

All questions from the publicly available 2019 to 2023 editions of the PNA were retrieved. ChatGPT-3.5 lacks the capability to process image inputs, whereas the newer version, ChatGPT-4o, includes this functionality. Nevertheless, every question was included in this analysis for both versions. For image-containing questions, only the text was submitted to ChatGPT-3.5, while both text and images were submitted to ChatGPT-4o. Each examination question was manually entered in sequence, following the order of the actual examination (version A). For each examination, a new chat window was created to prevent memory retention bias. Questions were submitted exactly as they appeared in the original examination, without any introductory prompts. The responses given by ChatGPT were marked according to the official final answer key.

Data analysis

We analysed the scores from each of the five PNA editions (2019 - 2023) for both ChatGPT-3.5 and ChatGPT-4o, treating each year as an independent case for comparison. The performances of ChatGPT-3.5 and ChatGPT-4o were then compared using the Mann-Whitney U test, given the small sample size. We also identified the lowest-scoring candidates who successfully matched into a residency program each year and compared their scores with ChatGPT's performance. A sensitivity analysis was conducted by excluding all questions containing images.

RESULTS

In total, 150 questions from each of the five PNA exam editions (2019 - 2023) were retrieved and evaluated, resulting in a total of 750 questions. The individual exam performance results of ChatGPT-3.5 and ChatGPT-4o across different years are summarized in Fig. 1. ChatGPT-4o showed significantly higher performance compared to ChatGPT-3.5, with median exam scores of 106 [Interquartile Range (IQR): 99 - 114.5] for ChatGPT-3.5 and 127 (IQR: 122.5 – 134) for

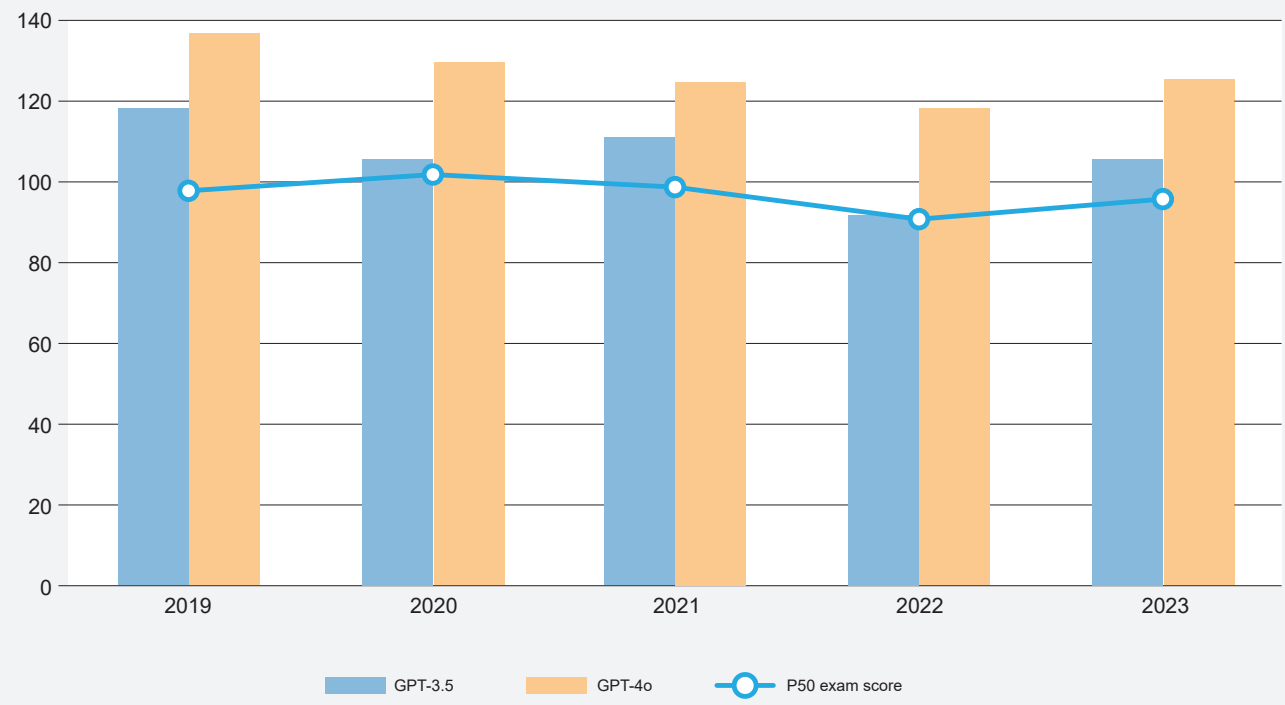

Figure 1 – Performance of ChatGPT on the Portuguese National Residency Access Examination. The figure shows the scores for ChatGPT-3.5 and ChatGPT-4o across five editions of the exam, with 150 questions per exam, totalling 750 questions evaluated.
PNA: Portuguese National Residency Access Exam (*Prova Nacional de Acesso*); P50: median score for each exam edition.

ChatGPT-4o (p = 0.048). The maximum possible score for each exam is 150, as each question is worth 1 point.

In the total question cohort, there were nine questions that included figures. ChatGPT-3.5 answered seven of these questions correctly, while ChatGPT-4o correctly answered six. Excluding questions with figures, ChatGPT-4o maintained a higher performance, with a median score of 124 (IQR: 122.5 - 127.5), compared to a median score of 106 (IQR: 106 – 111) for ChatGPT-3.5 (p = 0.016).

Regarding the overall medical graduate cohort, ChatGPT 4o surpassed the median score for each exam edition, while ChatGPT 3.5 performed below the 50th percentile in one examination version. Additionally, ChatGPT 4o ranked within the top 1% in two exam editions (2023 and 2019), achieving the highest score. Table 1 illustrates the comparison of ChatGPT's scores with the lowest-scoring candidates into various medical specialties across the different examination editions. Competitive specialties, such as dermatology, ophthalmology, and plastic surgery, required higher minimum scores, ranging from 110 to 129. ChatGPT-4o's scores consistently exceeded these thresholds in all years evaluated. ChatGPT-3.5, in contrast, fell below the minimum matching score in some instances. Less competitive specialties, including family medicine, internal medicine, and clinical pathology, presented the lowest scores. In these cases, both ChatGPT-3.5 and ChatGPT-4o performed above the required score, and many of these specialties had unfilled positions in certain years.

DISCUSSION

The major findings of this study are: (a) ChatGPT-4o demonstrated exceptional performance on the PNA, surpassing all medical graduate candidates in two exam editions. For highly competitive specialties, such as dermatology, ophthalmology, and plastic surgery – those with the highest minimum score – ChatGPT-4o's performance would have secured a match into any specialty; (b) This latest version of the AI program outperformed its predecessor, ChatGPT-3.5. The substantial improvement in ChatGPT-4o's score is attributed to the mitigation of previously identified weaknesses, resulting in a more proficient model in the medical domain.[3,6] A systematic review and meta-analysis of 45 studies assessing different versions of ChatGPT in medical licensing examinations found that ChatGPT-4o achieved an overall performance of 81% (95% CI: 78% - 84%), significantly surpassing the 58% (95% CI: 53% - 63%) performance of ChatGPT-3.5, supporting our findings.[2]

However, ChatGPT has documented areas of limited performance. First, there is a documented inconsistency in test-retest results, which raise concerns about its reliability.[7] Second, an analysis of ChatGPT-4o's performance on the United States Medical Licensing Examination revealed a tendency to make errors on questions requiring knowledge transfer skills, indicating a potential deficit in abstract thinking. Nonetheless, the PNA is a clinical vignette-based exam, and ChatGPT's exceptional performance in our study contrasts with previous data. Third, ChatGPT has shown better performance in English-speaking countries compared to non-English-speaking ones, which did not appear to affect the AI's results in PNA.[2] Fourth, recent findings on ChatGPT-4o's performance in specialized examinations like the Adult Clinical Cardiology Self-Assessment Program (namely when replying to a question bank that includes imaging and is used by the American Board of Internal Medicine on their general cardiology board exam), showed a 73.9% accuracy rate for text-only questions but a lower 55.3% for image-based questions, particularly electrocardiograms.[4] In our study, only nine questions contained images, with ChatGPT-3.5 performing marginally better than ChatGPT-4o on these (seven *versus* six questions answered correctly). Although this small sample limits the extent to which conclusions can be drawn about ChatGPT-4o's image-analysis capacity, it underscores an important consideration: the structured nature of certain questions may allow accurate answers based solely on the clinical vignette information, potentially bypassing the need for image interpretation.

Several hypotheses may explain why neither human candidates nor ChatGPT achieved the maximum score of 150 on the PNA. The PNA is intentionally rigorous, designed to assess a broad spectrum of medical knowledge and clinical reasoning skills. Its complexity and high standards may naturally prevent both AI and human candidates from achieving perfect scores. Additionally, the nuances of clinical scenarios presented in the PNA may challenge both groups; certain questions require advanced clinical inference and contextual judgment, which can pose difficulties for human candidates and AI alike. Moreover, some questions may contain inherent ambiguities or complex phrasing, adding another layer of difficulty. For human candidates, cognitive load and fatigue throughout the examination may further impact performance, an aspect not affecting the AI.

Our study suggests that ChatGPT exhibits strong medical knowledge. As an interactive resource, ChatGPT consistently provides correct answers and effectively clarifies why alternatives are incorrect, supporting deeper understanding and active learning. It is important to note that the PNA's structured format, featuring straightforward questions and answers, avoids the complexity found in real-world clinical scenarios.[3] This design choice enhances clarity and minimizes potential disputes over correct responses, thus streamlining the ranking process. Consequently, our findings do not assess ChatGPT's effectiveness in clinical decision-making within practical settings. While our results

Table 1 – ChatGPT residency matching results for the 2019 - 2022 Portuguese National Residency Access Examination editions. The results for ChatGPT-3.5 are shown on the left, while those for ChatGPT-4o are on the right. A green cell indicates that the score achieved by ChatGPT in that year was sufficient to match into the listed specialty, based on the score of the last candidate who successfully matched into that specialty. A red cell indicates that the score was not high enough to qualify for a match.

		ChatGPT-3.5				ChatGPT-4o			
	Exam year	2019	2020	2021	2022	2019	2020	2021	2022
	Chat GPT exam score	118	106	111	92	137	130	125	118
Acceptance score threshold by speciality	Pathology	76	78	84	NF	76	78	84	NF
	Anesthesiology	110	114	109	97	110	114	109	97
	Angiology and vascular surgery	115	114	110	106	115	114	110	106
	Cardiology	112	115	107	97	112	115	107	97
	Pediatric cardiology	99	107	101	92	99	107	101	92
	Cardiac surgery	104	110	105	91	104	110	105	91
	General surgery	93	103	90	74	93	103	90	74
	Maxillo-facial surgery	107	112	102	96	107	112	102	96
	Pediatric surgery	103	107	108	92	103	107	108	92
	Plastic surgery	122	123	119	111	122	123	119	111
	Thoracic surgery	107	111	103	94	107	111	103	94
	Dermatology	123	129	121	110	123	129	121	110
	Infeccious disease	85	80	63	NF	85	80	63	NF
	Endocrinology	109	110	108	103	109	110	108	103
	Stomatology	77	59	55	NF	77	59	55	NF
	Clinical pharmacology	59	72	NF	NF	59	72	NF	NF
	Gastroenterology	115	121	112	104	115	121	112	104
	Medical genetics and genomics	78	85	89	NF	78	85	89	NF
	Obstetrics and gynecology	105	114	106	94	105	114	106	94
	Hematology	76	85	61	NF	76	85	61	NF
	Allergy and immunology	100	106	96	84	100	106	96	84
	Transfusion medicine	63	NF	NF	NF	63	NF	NF	NF
	Sports medicine	110	NA	109	101	110	NA	109	101
	Physical medicine and rehabilitation	99	109	94	92	99	109	94	92
	Family medicine	63	NF	NF	NF	63	NF	NF	NF
	Critical care medicine	89	88	49	NF	89	88	49	NF
	Internal medicine	57	NF	NF	NF	57	NF	NF	NF
	Forensic medicine	84	78	86	NF	84	78	86	NF
	Nuclear medicine	107	104	105	93	107	104	105	93
	Occupational medicine	87	102	95	82	87	102	95	82
	Nephrology	100	105	94	90	100	105	94	90
	Neurosurgery	98	111	103	95	98	111	103	95
	Neurology	105	108	97	89	105	108	97	89
	Neuroradiology	108	115	109	95	108	115	109	95
	Ophthalmology	122	125	120	111	122	125	120	111
	Medical oncology	86	87	50	NF	86	87	50	NF
	Orthopedic surgery	100	110	102	95	100	110	102	95
	Otolaryngology	114	117	111	102	114	117	111	102
	Clinical pathology	57	NF	NF	NF	57	NF	NF	NF
	Pediatrics	99	104	99	84	99	104	99	84
	Pulmonology	101	104	97	89	101	104	97	89
	Psychiatric	93	95	98	87	93	95	98	87
	Child and adolescent pshychiatry	98	103	98	88	98	103	98	88
	Radiology	111	113	112	97	111	113	112	97
	Radiation oncology	88	82	69	NF	88	82	69	NF
	Rheumatology	106	110	99	95	106	110	99	95
	Public health	65	53	NF	NF	65	53	NF	NF
	Urology	111	113	110	99	111	113	110	99

NA: not available; U: unfilled positions.

highlight ChatGPT's capabilities in a controlled testing environment, its performance may not seamlessly transfer to dynamic clinical contexts, where adaptive reasoning and contextual judgment are essential. This limitation underscores the critical role of human oversight in real-world applications and the need for further studies to assess ChatGPT's reliability and adaptability in actual clinical scenarios. Ultimately, the responsibility for clinical management must reside with qualified healthcare professionals, as exclusive reliance on ChatGPT's responses for patient care remains, at this stage, ethically unsound. Future studies could also focus on integrating ChatGPT into clinical practice, assessing how AI can collaborate with physicians to enhance decision-making without replacing human judgment. Additionally, examining ChatGPT's performance across different cultural and linguistic contexts would provide a better understanding of its applicability in medical examinations from various regions and languages.

Another limitation of this study is the potential for ChatGPT to have been exposed to publicly available PNA questions from earlier editions (2019 - 2020), as both models have been trained with data up to September 2021. While neither ChatGPT-3.5 nor ChatGPT-4o have real-time browsing capabilities and therefore could not access more recent examination questions online, we acknowledge this potential bias. Additionally, the browsing-enabled ChatGPT-4 Turbo (released in November 2023) was not used in this study, further minimizing the likelihood of direct access to PNA questions. Evaluating the performance of ChatGPT-4 Turbo on the PNA would be an interesting focus for future studies.

Finally, another area for future research would be the development of a ChatGPT-enabled mock examination platform to evaluate the AI's capacity for generating diverse, high-quality medical questions, particularly multiple choice questions.[8] Such a tool could enhance educators' productivity by quickly creating question banks and support self-directed learning for students by providing accessible, examination-style practice. Future studies could assess the accuracy, relevance, and educational impact of these AI-generated questions to ensure alignment with clinical and educational standards in medical training.

CONCLUSION

ChatGPT-4o demonstrated excellent performance on the PNA, consistently outperforming the average examination participant and achieving high enough scores to match into any specialty.

AUTHOR CONTRIBUTIONS

GFC, MG: Study design, data acquisition and analysis, drafting of the manuscript.

MOS, RPT: Critical review of the manuscript.

All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

COMPETING INTERESTS

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Abordagem da Escabiose em Idade Pediátrica: Uma Atualização

Approach to Scabies in Children: An Update

Sofia SEABRA VIEIRA✉[1], Diana BERNADO[2], Susana MACHADO[2]
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RESUMO

A escabiose é uma infeção dermatológica comum, que afeta globalmente mais de 200 milhões de pessoas. É causada pelo parasita *Sarcoptes scabiei* var. *hominis* e a sua transmissão dá-se por contacto direto. Os sintomas surgem entre as três e seis semanas após a infestação, sendo o prurido intenso a manifestação mais característica. As lesões aparecem mais frequentemente nas mãos, punhos, axilas, região periumbilical, nádegas e região genital, e nas crianças afetam também a face, couro cabeludo, palmas e plantas, tornozelos e tórax. Assim, o diagnóstico é clínico, mas pode ser desafiador devido à diversidade das manifestações. O tratamento visa eliminar o parasita e aliviar os sintomas, utilizando opções como permetrina a 5%, benzoato de benzilo, sulfato de enxofre tópicos ou ivermectina sistémica. A permetrina é recomendada como primeira linha para crianças acima de dois meses, enquanto a ivermectina é usada em casos mais graves. A adesão ao tratamento e a desinfestação de roupas e lençóis são fundamentais para prevenir reinfestações. Dada a sua prevalência e impacto significativo na saúde pública, especialmente em idade pediátrica, é crucial o reconhecimento precoce e tratamento eficaz.
Palavras-chave: Criança; Escabiose/diagnóstico; Escabiose/tratamento farmacológico

ABSTRACT

Scabies is a common dermatological infection that globally affects more than 200 million people. It is caused by the parasite *Sarcoptes scabiei* var. *hominis* and its transmission primarily occurs through direct contact. Symptoms typically appear three to six weeks after infestation, with intense itching being the most characteristic manifestation. Lesions most commonly appear on the hands, wrists, armpits, periumbilical area, buttocks, and genital region, although the clinical manifestations vary with age. In infants and children, they also affect the face, scalp, palms, soles, ankles, and chest. Therefore, diagnosis is clinical but challenging due to the diversity of manifestations. Treatment aims to eliminate the parasite and relieve symptoms, using options such as topical 5% permethrin, benzyl benzoate, sulfur sulfate, or systemic ivermectin. Permethrin is recommended as the first-line treatment for children over two months, while ivermectin is used in more severe cases. Adherence to treatment and the disinfestation of clothing and bedding are crucial to prevent reinfestation. Early recognition and effective treatment are essential given its prevalence and significant impact on public health, particularly in pediatric populations.
Keywords: Child; Scabies/diagnosis; Scabies/drug therapy

INTRODUÇÃO

A escabiose é uma das doenças infeciosas dermatológicas mais comuns mundialmente, afetando pessoas de todas as idades, sexos e estratos socioeconómicos. Tem uma prevalência superior a 200 milhões de pessoas a nível mundial e atinge 5% - 50% das crianças de áreas de baixos recursos. Em 2017, a Organização Mundial da Saúde (OMS) incluiu-a no grupo das doenças tropicais negligenciadas, realçando a necessidade de um melhor reconhecimento desta doença e da implementação de ações de controlo de grande escala.[1]

A transmissão entre humanos ocorre principalmente através do contacto direto com a pele e o agente responsável é o *Sarcoptes scabiei* var. *hominis,* um parasita humano obrigatório.[2] Quando há contacto com pele infestada, os ácaros fêmea penetram o estrato córneo, criando uma galeria onde depositam os ovos, que dão origem a larvas três a quatro dias depois. Essas larvas dirigem-se para a superfície da epiderme, escavando pequenas bolsas, onde, cerca de duas semanas depois, como adultos, acasalam e infestam de novo a pele do hospedeiro. Posteriormente, os ácaros macho morrem e as fêmeas voltam a escavar as galerias, completando um ciclo de vida que dura quatro a seis semanas.[3-5] É necessário um contacto direto com a pele por um mínimo de cinco minutos para que ocorra infestação, sendo o contacto sexual um momento importante de transmissão; fora do corpo humano, a sobrevida dos ácaros à temperatura ambiente é de cerca de 36 horas.[4] A transmissão por fómites, como roupas e lençóis, é rara,[3] sendo mais significativa na escabiose crostosa (ou escabiose norueguesa), em que a carga parasitária por pessoa é muito superior e os ácaros podem transmitir-se através das escamas destacáveis.[3-6]

A taxa de infestação é maior em locais de alta densidade populacional e com aglomerados de pessoas, como lares, creches e instituições de acolhimento,[3,5] sendo assim as crianças abaixo dos dois anos e os idosos os mais afetados.[5] A sobrelotação com contacto próximo, partilha de camas, maiores taxas de reinfestação, subdiagnóstico e falha terapêutica são alguns fatores que podem justificar a alta incidência de escabiose na população pediátrica.[2,3,6,8]

1. Serviço de Pediatria. Unidade Local de Saúde São João. Porto. Portugal.
2. Serviço de Dermatologia. Unidade Local de Saúde Santo António. Porto. Portugal.
✉ **Autor correspondente:** Sofia Seabra Vieira. sofiavieira97@gmail.com
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Por ser um problema de saúde pública global com grande impacto psicossocial e grande peso nos anos de vida ajustados para incapacidade[5,6,6] é essencial o seu reconhecimento precoce e tratamento eficaz atempado.

O objetivo deste artigo foi fazer uma revisão da evidência publicada relativamente às opções de tratamento da escabiose em idade pediátrica, adequada à realidade portuguesa.

MANIFESTAÇÕES CLÍNICAS

Os sintomas de escabiose iniciam-se habitualmente por volta de três a seis semanas após a infestação, embora em casos de reinfestação os sintomas possam surgir em um a três dias, por sensibilização prévia do sistema imunológico.[5,6] A manifestação clínica mais comum da escabiose é o prurido, mais exuberante durante a noite e após os banhos. Esse prurido é consequência de reações de hipersensibilidade ao parasita, nomeadamente através da produção de interleucina-31 e macrófagos M2,[4] e da própria atividade parasitária na pele, que causa trauma e irritação. O prurido, por si, também despoleta posteriormente uma dermatite irritativa. Os locais de distribuição preferenciais são as pregas interdigitais, face anterior dos punhos e cotovelos, face anterior e posterior das pregas axilares, pregas inguinais, região periumbilical, nádegas, região genital e periareolar.[4,6,7]

Nos lactentes e crianças em idade pré-escolar, o prurido habitualmente é menos exuberante, podendo apresentar-se como irritabilidade, perturbação do sono, agitação e recusa alimentar, com impacto no desenvolvimento estaturoponderal. Pela ineficácia do ato de coçar, existem menos escoriações, pelo que as lesões cutâneas específicas de escabiose podem ser mais facilmente identificáveis e a carga parasitária superior.[10] No entanto, o diagnóstico pode ser mais difícil pelo facto de, nestas idades, as lesões serem mais localizadas, aparecerem frequentemente na face, couro cabeludo, palmas e plantas (o que ajuda a diferenciar de outras dermatites pruriginosas comuns nessa faixa etária), punhos, tornozelos e tórax[4,6] e apresentarem poucas escoriações.[10]

As lesões cutâneas específicas da escabiose são:

- Sulcos (galerias): lesões lineares/tortuosas, com alguns milímetros de comprimento, causadas pelo trajeto do ácaro fêmea na camada córnea. Podem ser difíceis de identificar quando existem escoriações severas.[6,10]
- Lesões vesiculo-pustulares: aparecem no couro cabeludo, na região palmoplantar ou nos espaços interdigitais, e podem estar intactas ou erodidas e conter o ácaro.[4,6]
- Nódulos: lesões papulo-nodulares edematosas, pruriginosas, decorrentes de reações inflamatórias intensas, que aparecem habitualmente nas pregas axilares, inguinais e escrotais. Aparecem mais frequentemente em crianças com idade inferior a dois anos, podendo ser as únicas lesões, e persistem por meses após o tratamento.[6,10]

O envolvimento das unhas foi também relatado em algumas crianças, sendo um sinal frequente de recidiva na doença. Estas podem não apresentar alterações além da presença de hiperqueratose, contudo a presença de panarício deverá ser interpretada como suspeita.[4]

Em alguns casos, raros, a escabiose pode manifestar-se sob a forma de escabiose bolhosa, apresentando bolhas tensas ou flácidas nos locais habituais e pode acompanhar-se de prurido. Esta ocorre por uma reação imune exagerada ao parasita e é mais frequente em adultos.[11]

A escabiose crostosa, mais frequente em doentes imunodeprimidos, manifesta-se habitualmente com hiperqueratose, escamas soltas ou aderentes, e pode associar-se a prurido. Os locais mais comummente afetados são a face, couro cabeludo, dedos, genitais e faces extensoras dos cotovelos, muitas vezes provocando também linfadenopatias generalizadas.[6,12] Esta é uma forma de sarna mais exuberante e debilitante, com uma carga parasitária muito elevada, eosinofilia e níveis elevados de imunoglobulina E.[4] A progressão de escabiose comum para escabiose crostosa é incomum.

DIAGNÓSTICO

O diagnóstico da escabiose é clínico, sendo a presença de galerias patognomónica. Contudo, as manifestações clínicas variam de acordo com a idade e muitas vezes a visualização de lesões específicas é difícil, o que torna o diagnóstico desafiador. Devemos considerar este diagnóstico sempre que uma criança apresente dermatose generalizada pruriginosa, especialmente se outros membros da família apresentarem sintomas semelhantes.[3,7]

Em 2020, a International Alliance for the Control of Scabies propôs uma lista de critérios padronizados (Tabela 1) que ajudam a estabelecer o diagnóstico de escabiose.[4,12]

O diagnóstico definitivo assenta na visualização do parasita e dos seus ovos, fezes e outros fragmentos ao microscópio após raspagem dos sulcos,[3] contudo, esta pode ser dificultada pela baixa carga parasitária na escabiose comum.

A dermatoscopia, amplamente utilizada por dermatologistas, também pode ajudar no diagnóstico com a visualização do ácaro e trajeto do mesmo (‘padrão jato com rasto’), da cabeça do ácaro em forma triangular (‘padrão em asa delta’) ou dos ovos do parasita dentro das galerias.[7] Este exame pode ser difícil em fotótipos mais escuros, hirsutismo ou áreas com múltiplas lesões de escoriação.[12] Na escabiose crostosa, pode ser objetivada a hiperqueratinização

Tabela 1 – Critérios diagnósticos de escabiose da International Alliance for the Control of Scabies

A. Escabiose confirmada
Pelo menos um dos seguintes:
- A1: Ácaros, ovos ou fezes identificados por microscopia de luz em amostras de pele;
- A2: Ácaros, ovos ou fezes visualizados usando um dispositivo de imagem de alta potência;
- A3: Ácaro visualizado por dermatoscopia.
B. Escabiose clínica
Pelo menos um dos seguintes:
- B1: Sulcos/ galerias de escabiose;
- B2: Lesões típicas na região genital masculina;
- B3: Lesões típicas numa distribuição típica + dois aspetos sugestivos de escabiose na história clínica*.
C. Escabiose suspeita
Um dos seguintes:
- C1: Lesões típicas numa distribuição típica + um aspeto sugestivo na história clínica*;
- C2: Lesões atípicas ou distribuição atípica + dois aspetos sugestivos de escabiose na história clínica*.
***Aspetos a valorizar da história clínica**
- H1: Prurido;
- H2: História de contacto positivo.

da pele e um 'padrão de *noodle'* com aglomerados de sulcos devido à elevada proliferação de ácaros.[4]

Biópsias de pele podem ser efetuadas, embora seja um procedimento pouco utilizado e reservado para manifestações atípicas ou doença refratária ao tratamento.[12]

Além destes, existem outros métodos diagnósticos menos utilizados como: a microscopia confocal de reflectância, que utiliza um feixe de laser refletido para inspecionar as várias camadas da pele e ver *in vivo* os ácaros dentro dos sulcos; a tomografia de coerência ótica, que utiliza luz infravermelha para visualizar os ácaros e os seus fragmentos na pele; o teste do buraco de tinta, que ao aplicar tinta nos túneis visíveis na pele permite delinear a sua forma curvilínea típica; e o teste da fita adesiva, em que é aplicada na pele fita adesiva e posteriormente removida e analisada microscopicamente.[12]

Quanto à avaliação laboratorial da escabiose, também estão a ser desenvolvidas técnicas de deteção de antigénio através de ensaios imunoenzimáticos por ELISA (*enzyme-linked immunosorbent assay)* e técnicas moleculares para deteção do ácido desoxirribonucleico do parasita através de *polymerase chain reaction* que identificam a subunidade da C-oxidase do *S. scabiei*. Estes ainda não foram aprovados devido à sua custo-eficácia.[4,7,12]

Diagnóstico diferencial

Algumas entidades que fazem diagnóstico diferencial com a escabiose são:

- Dermatite atópica: doença comum nas crianças, surgindo como placas eritematodescamativas pruriginosas, mais comuns nas regiões flexoras. Distingue-se da escabiose pela localização, ausência de agravamento durante a noite e ausência de sulcos acarinos.
- Prurigo estrófulo: resulta de uma reação de hipersensibilidade à saliva do inseto e manifesta-se com pápulas dispersas pelo corpo.
- Acropustulose infantil: pústulas e vesículas nas palmas e plantas, não pruriginosas. Pode ser uma manifestação pós-escabiótica.[4]
- Dermatite herpetiforme: reação autoimune crónica por sensibilidade ao glúten – caracteriza-se por uma dermatite vesiculo-papular, pruriginosa, habitualmente nas superfícies extensoras dos membros, de forma grosseiramente simétrica nos cotovelos e joelhos.
- Mastocitose maculopapular: máculas e pápulas acastanhadas com bordos mal definidos, que quando friccionadas, desenvolvem uma reação urticariforme local (sinal de Darier).[10]

COMPLICAÇÕES

A principal complicação da escabiose é a infeção bacteriana secundária por *Streptococcus pyogenes* ou *Staphylococcus aureus*, na forma de impetigo, celulite, foliculite ou ectima, e é mais comum em idade pediátrica.[2,7] Menos frequentemente, esta infeção pode-se estender aos tecidos profundos e complicar como fascite necrotizante.

O trauma recorrente da barreira cutânea condicionado pelo prurido leva a soluções de continuidade da pele que

atuam como portas de entrada.[5,6] Adicionalmente, este fenómeno é potenciado pela interação do *Sarcoptes scabiei* com sistema imunológico do hospedeiro através da inibição do complemento por proteínas produzidas pelo parasita, o que favorece a sobrevivência do *S. pyogenes* e o crescimento do *S. aureus*. Esta é a razão pela qual o impetigo é mais prevalente em regiões com alta prevalência de escabiose.[6,9]

Se não tratada atempadamente, esta pode evoluir para infeção sistémica por estes agentes, como sépsis, síndrome do choque tóxico ou infeção osteoarticular.[5] No caso de infeção por *S. pyogenes,* uma das complicações tardias a referir será a glomerulonefrite pós-estreptocócica aguda, com alguns autores a relatar o aumento da sua incidência após surtos de escabiose.[2]

Em doentes imunodeprimidos com escabiose crostosa, o herpes *simplex* também deve ser um agente a considerar em casos de sobreinfeção, manifestando-se com *Scabies herpeticum*.[5]

Assim, o tratamento primário da escabiose é muito importante, estando associado à redução significativa de impetigo e de complicações renais, mesmo sem antibioterapia.[6,7]

Nas crianças, pode ocorrer uma reação de hipersensibilidade autolimitada, não contagiosa, após o tratamento, com persistência de pústulas e nódulos nas plantas e palmas, mas sem sulcos ou presença de ácaros, denominada acropustulose infantil.[4]

O prurido pós-escabiótico é uma condição que pode persistir por duas a quatro semanas até à eliminação total dos ácaros, não existindo contagiosidade.[5] Por esse motivo, por destruição da barreira cutânea, existe também aumento do risco de desenvolver ou de agravar doenças como dermatite atópica ou psoríase em indivíduos predispostos.[5]

Outras comorbilidades muito comuns associadas à escabiose relacionam-se com afeção psicossocial, nomeadamente com distúrbios do sono, estigmatização social, depressão e alterações da concentração.[2]

TRATAMENTO

Medidas gerais

O tratamento da escabiose assenta no tratamento de sintomas – nomeadamente com a utilização de anti-histamínicos para o prurido e emolientes e/ou corticoides tópicos para a dermatite – e na erradicação da parasitose, estando o sucesso da erradicação dependente da adesão ao tratamento, do tratamento simultâneo dos contactos próximos e da desinfestação de fómites.[3]

Desta forma, além de um diagnóstico atempado, é importante fornecer as instruções terapêuticas pormenorizadas de forma oral e escrita a todos os doentes, na medida em que isto ajuda a aumentar a adesão terapêutica. Alguns conselhos importantes são: aplicar o tratamento tópico em todo o corpo, incluindo nas pregas interdigitais, umbigo e genitais; nas crianças com menos de dois anos e em idosos, aplicar também no couro cabeludo, face e pescoço, com exceção da boca e olhos; aplicar nas mãos e reaplicar se estas forem lavadas; remover o produto apenas após o tempo recomendado; e cortar as unhas antes do tratamento.[2] O tratamento dos contactos próximos (que pertencem ao núcleo familiar, que partilham habitação, parceiros sexuais) é essencial, mesmo se assintomáticos, porque podem encontrar-se no período de incubação que é longo e igualmente contagioso.[13]

Quanto à desinfestação de fómites, esta torna-se relevante pela capacidade de sobrevivência do parasita fora do hospedeiro, nomeadamente a temperaturas mais baixas e ambientes mais húmidos.[3] Aconselham-se medidas como: lavar roupas, lençóis e peluches a 50 – 60ºC por pelo menos 10 minutos e secá-los na máquina; colocar todos os objetos não laváveis num saco selado preto por um mínimo de três dias em clima seco e temperado (22ºC) ou no congelador a temperaturas entre -10ºC e -18ºC por pelo menos cinco horas.[4,13] Além disso, é essencial a evicção do contacto pele-com-pele com outras pessoas potencialmente infestadas.

Tratamento farmacológico

O tratamento de erradicação da escabiose depende do tipo de manifestações, da gravidade, da idade do doente, da experiência local, do perfil de efeitos adversos e do custo e disponibilidade dos fármacos.[2,12] As recomendações europeias aconselham, como tratamento de primeira linha, a permetrina a 5%, o benzoato de benzilo ou ivermectina sistémica.[12-14]

Crianças que frequentem creche/infantário poderão regressar ao mesmo após conclusão do tratamento tópico ou 24 horas após a primeira toma de ivermectina.[4]

A Tabela 2 resume as indicações terapêuticas de acordo com a idade/condição dos doentes.

Permetrina

A permetrina a 5% em creme está aprovada para o tratamento da escabiose em crianças com idade superior a dois meses desde 2015, sendo considerado o tratamento de primeira linha por várias normas de orientação clínica internacionais, nomeadamente pelo Centers for Disease Control and Prevention.[2] Pode ser utilizada em grávidas e mulheres a amamentar e, embora exista um número muito limitado de estudos em crianças com menos de dois meses, esta mostrou ser eficaz e segura nesta faixa etária.[15]

A quantidade utilizada deve ser ajustada ao tamanho da criança, devendo cobrir toda a superfície corporal e deve

Tabela 2 – Tratamento da escabiose conforme a idade

Idade/ condição	Tratamento de 1.ª linha
Recém-nascido até 2 meses	Enxofre a 5% em vaselina purificada
Crianças > 2 meses e adultos	Permetrina 5%
Grávidas/ mulheres a amamentar	Enxofre 5% - 10% em vaselina purificada
Escabiose crostosa	Ivermectina 200 µg/kg (2 tomas)* + permetrina 5%
Surtos na comunidade	Ivermectina 200 µg/kg (2 tomas separadas por 8 - 14 dias)*
Doença resistente ao tratamento tópico ou com contraindicações ao tratamento tópico	Ivermectina 200 µg/kg (2 tomas separadas por 8 - 14 dias)*

*: se > 2 anos de idade e peso > 15kg

ser deixada a atuar por cerca de 8 - 12 horas. Até aos 5 anos, a dose recomendada é 7,5 g; entre os seis e os 12 anos, 15 g; e a partir dos 12 anos, 30 g. Sendo adulticida e ovicida, pode ser aplicada apenas uma vez, mas, para maior eficácia terapêutica, habitualmente cumpre-se um esquema de duas aplicações separadas por sete dias.[4,15]

É habitualmente bem tolerada, existe pouca absorção e é facilmente metabolizada. Alguns efeitos adversos descritos são parestesias, sensação de queimadura, prurido e xerose.[4]

Está descrita uma eficácia de 95% - 98%.[5] No entanto, parece ter sido notada uma diminuição da sua eficácia nos últimos tempos em alguns estudos,[13,16,17] que pode estar relacionada com resistências do parasita, previamente já identificadas *in vitro*,[13,18] mas também com as falhas inerentes à sua aplicação.

Em Portugal, é comercializada em gel, aprovada desde 2021 (Permetrina LMP).

Ivermectina

A ivermectina tópica, comercializada em Portugal como Soolantra®, creme a 1% pode ser utilizada com uma eficácia semelhante à ivermectina oral e à permetrina 5%,[4,19] embora seja menos utilizada pelo seu elevado custo, indisponibilidade e limitada evidência em larga escala.[12]

Quanto à ivermectina sistémica, administrada por via oral, como manipulado, tem-se mostrado uma opção segura e eficaz, com uma posologia simples, o que aumenta a adesão terapêutica. Está aprovada num esquema de duas tomas, numa dose de 200 µg/kg, sendo que a segunda toma, aconselhada 8 - 14 dias após a primeira, é necessária por não ter ação ovicida.[4,6,12] É um fármaco aprovado em vários países e um antiparasitário considerado pela OMS como essencial para a humanidade.[13] Está aprovada para crianças com mais de dois anos de idade e peso superior a 15 kg,[3,4] sendo desaconselhada em crianças mais pequenas e grávidas,[10,12] embora existam estudos que mostram a sua segurança na utilização em crianças com menos de 15kg.[20,21]

Atualmente, está reservada para surtos na comunidade, casos de contraindicação do tratamento tópico, casos resistentes ao tratamento tópico ou para escabiose crostosa, sendo que nestes dois últimos casos poderá ser combinada com tratamento tópico.[3,4]

É um fármaco bem tolerado, com efeitos adversos ligeiros e transitórios, nomeadamente cefaleias, tonturas, parestesias, hipotensão, astenia, náuseas, vómitos, dor abdominal, mialgias, artralgias, exantemas, prurido e dispneia.[12,15] Em casos raros, foram ainda observadas hipereosinofilia transitória, alterações da função hepática e hematúria. Estes efeitos adversos associam-se a doses altas de ivermectina ou à resposta imunoinflamatória à morte dos parasitas (reação de Mazzotti).[15]

Benzoato de benzilo

O benzoato de benzilo está aprovado para aplicação tópica a partir do primeiro mês de idade, como solução cutânea a 10%, e após os 12 anos como solução a 25%.[4] Deve ser aplicado com duas camadas espaçadas em 10 - 15 minutos, em pele seca após o banho, ficando a atuar 24 - 48 horas e repetindo o mesmo esquema 7 - 14 dias depois.[4,12] Em Portugal, é comercializado como Acarilbial® (com concentração 277 mg/mL).

Alguns efeitos adversos relatados são eczema, xerose e sensação de queimadura quando aplicado em zonas escoriadas, pelo que se aconselha a toma de banho diária e aplicação de emoliente.[3] O uso em grávidas e mulheres a amamentar deve ser considerado com precaução.[2]

Enxofre

O enxofre é o escabicida mais antigo, sendo utilizado há séculos no tratamento da escabiose.[3] Pelos seus perfis de segurança e eficácia bem estudados, é o tratamento de eleição em crianças pequenas, nomeadamente nos recém-nascidos, nas grávidas e em mulheres a amamentar.[2,4] O esquema de tratamento compreende a aplicação três dias seguidos, à noite, realizando lavagem corporal antes de todas as aplicações e deve ser repetido na semana seguinte.[3] Não estão descritos efeitos adversos importantes, apontando o odor desagradável e a possível irritação da

pele como efeitos indesejáveis.[12]

Em Portugal está disponível sob a forma de manipulado precipitado em 5% - 10% de vaselina purificada,[2] a um preço acessível.

Lindano

O lindano não é atualmente recomendando e não se encontra comercializado na Europa.[2-4]

Crotamiton

O crotamiton está aprovado pela U.S. Food and Drug Administration (FDA) para o tratamento de adultos e pode ser útil na escabiose nodular infantil.[2-4] Em Portugal, não está disponível desde 2016.

Tratamentos futuros

A moxidectina é um fármaco sistémico ainda por aprovar na Europa para uso humano. No entanto foi já aprovado pela FDA para o tratamento da oncocercose, pelo que poderá ser utilizado na escabiose. Atua de forma semelhante à ivermectina, com menor toxicidade, maior eficácia e um tempo de semivida superior, que permite uma toma única.[4,5,12]

A utilização de doses superiores (0,4 mg/kg) de ivermectina em duas doses também parece aumentar a eficácia do tratamento, estando sob investigação.[7]

Embora existam tratamentos com grande eficácia, por vezes são necessárias múltiplas intervenções terapêuticas e combinar fármacos tópicos e sistémicos. Isto prende-se com o facto de algumas das terapias terem esquemas complexos e difíceis de cumprir, da atividade ovicida limitada dos fármacos e das suas semividas relativamente curtas em relação ao longo ciclo de vida deste parasita.[7]

É importante salientar que a persistência de prurido após o tratamento nem sempre é critério para repeti-lo, uma vez que a reação imunológica aos restos do parasita é uma causa mais frequente de prurido pós-tratamento do que a reinfestação, podendo persistir por quatro a seis semanas até a eliminação completa de resíduos parasitários.[2,3] É importante certificar-se sempre de que o tratamento foi realizado corretamente, com uma duração adequada e também pelos contactos.[4] O prurido pós-escabiose pode ser tratado com emolientes, anti-histamínicos orais e corticoides tópicos de baixa potência.[12]

CASOS PARTICULARES

Escabiose crostosa

A escabiose crostosa deve ser tratada com fármacos sistémicos e tópicos, nomeadamente ivermectina oral e permetrina a 5%, de forma a diminuir a carga parasitária e obter maior penetração na pele hiperqueratinizada. O esquema aconselhado é ivermectina três, cinco ou sete dias e permetrina diária por sete dias seguida de aplicações duas vezes por semana até resolução clínica. O uso concomitante de produtos queratolíticos pode aumentar a eficácia do tratamento escabicida.[6,13]

Escabiose nodular

A escabiose nodular habitualmente é tratada com os mesmos esquemas que a escabiose clássica. Em casos severos ou resistentes pode ser vantajosa a aplicação de corticoides tópicos de alta potência durante duas a três semanas ou poderá ser necessário injetar corticoides intralesionais.[5]

Sobreinfeção bacteriana

Em casos de sobreinfeção bacteriana, deve ser utilizada antibioterapia tópica ou sistémica, de acordo com a gravidade e extensão da mesma.[2] O tratamento da sobreinfeção bacteriana deve preceder o tratamento da escabiose. Habitualmente são utilizados ácido fusídico ou mupirocina (tópicos) ou flucloxacilina em monoterapia ou em associação com clindamicina, macrólidos ou cefalosporinas (de forma sistémica), conforme os padrões locais de sensibilidade.[12]

CONCLUSÃO

A escabiose é uma doença dermatológica infeciosa de grande relevância mundial, com impacto significativo na saúde pública. As crianças são um grupo especialmente afetado, nomeadamente em áreas de baixos recursos, pela sobrelotação e contacto próximo entre indivíduos. Assim, a elevada prevalência, aliada ao subdiagnóstico, falhas terapêuticas e reinfestações, evidencia a necessidade de uma abordagem abrangente que combine prevenção, diagnóstico precoce e tratamentos eficazes.

Em idade pediátrica a escabiose apresenta características específicas, que exigem atenção. O diagnóstico pode ser dificultado por o prurido ser menos evidente e as lesões se localizarem frequentemente em zonas como a face, couro cabeludo, palmas, plantas e tórax.

Quanto ao tratamento, este inclui o uso tópico de permetrina a 5%, segura em idades a partir dos dois meses, e de enxofre precipitado para lactentes abaixo dessa idade. A ivermectina oral está reservada para crianças acima dos 15 kg. A utilização de terapêuticas combinadas pode ser importante em casos graves, como a escabiose crostosa. A implementação simultânea de medidas educacionais é crucial para controlar a transmissão da doença, nomeadamente com a desinfestação de fómites e tratamento simultâneo de contactos próximos. Perante casos refratários ao tratamento, formas graves de escabiose ou dúvidas quanto ao diagnóstico, estes deverão ser referenciados para avaliação por especialistas em dermatologia.

CONTRIBUTO DOS AUTORES

SSV: Desenho do estudo, aquisição e análise de dados, redação do manuscrito.

DB, SM: Desenho do estudo, revisão do manuscrito.

Todas as autoras aprovaram a versão final a ser publicada.

CONFLITOS DE INTERESSE

As autoras declaram não ter conflitos de interesse relacionados com o presente trabalho.

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Recurrent Syncope During Migraine Attacks

Síncopes Recorrentes Durante Crises de Enxaqueca

Mariana DIAS DA COSTA✉[1], Beatriz NUNES VICENTE[1], Filipa DOURADO SOTERO[1,2,3], Isabel PAVÃO MARTINS[1,2,3]
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ABSTRACT

Migraine is a cyclic condition with attacks consisting mainly of intense headaches, sensory intolerance, and nausea or vomiting. Loss of consciousness during attacks is often attributed exclusively to a neurally mediated reflex to pain, although it may also be due to migraine's autonomic impairment, with cardiac conduction abnormalities, probably in relation to a degree of reduced sympathetic function. We report the case of a 51-year-old woman presenting episodes of syncope exclusively after vomiting during migraine attacks. A 24-hour Holter monitoring performed during a migraine attack disclosed an intermittent complete atrioventricular block coincident with an episode of syncope. The patient was implanted with a pacemaker without further syncopes on subsequent attacks. This case highlights the importance of clinical suspicion and investigation of syncope during migraine attacks. Recurrent syncope during migraine should not be attributed to pain to avoid misdiagnosis and ensure the treatment of other important causes of syncope.
Keywords: Atrioventricular Block; Migraine Disorders/complications; Syncope

RESUMO

A enxaqueca inclui manifestações episódicas entre as quais a cefaleia, intolerância a estímulos sensoriais, náuseas e vómitos. Os episódios de alteração de consciência durante as crises de enxaqueca são por vezes atribuídos exclusivamente à dor, podendo também ter relação com a disautonomia da enxaqueca, nomeadamente cardíaca, com alterações da condução auriculoventricular, provavelmente em relação com hipoativação simpática. Descrevemos o caso de uma mulher de 51 anos com síncopes de repetição que ocorriam exclusivamente após o vómito durante crises de enxaqueca. O Holter 24 horas realizado durante uma crise documentou um bloqueio auriculoventricular completo, coincidente com episódio de síncope. Foi implantado um *pacemaker* definitivo, sem recorrência. Este caso sublinha a importância da suspeita clínica e investigação de síncope que ocorre durante crises de enxaqueca. Síncopes recorrentes durante crises de enxaqueca não devem ser atribuídas por rotina à dor, garantindo o diagnóstico diferencial e orientação terapêutica atempados.
Palavras-chave: Bloqueio Atrioventricular; Perturbações da Enxaqueca/complicações; Síncope

INTRODUCTION

Migraine is considered a chronic disorder, in many cases accounting for a profound impact in individuals' lives. The spectrum of attack manifestations is large and variable among patients, and occasionally, patients present with atypical symptoms such as syncope, defined as a transient loss of consciousness due to cerebral hypoperfusion during the attacks.[1]

Migraine has been associated with a higher prevalence of epilepsy and syncope.[1,2] The occurrence of syncope has mostly been attributed to a vasovagal parasympathetic mechanism triggered by pain, but its pathophysiology is not completely understood.[1] Rarely, cardiac autonomic nervous system (ANS) impairment during migraine may lead to heart conduction abnormalities, being another possible causal factor for syncope.[3]

CASE DESCRIPTION

A 51-year-old female patient had a history of episodic migraine without aura since her twenties. Migraine attacks consisted of parieto-occipital throbbing pain with photophobia, phonophobia, and osmophobia. The attacks did not include unilateral tearing, rhinorrhea, or conjunctival injection. Migraine occurred six days per month for the last year, with each attack lasting up to 24 hours.

Since her forties, the attacks also always included nausea, and, in at least half of them, the patient complained of vomiting. She had tried different oral preventive treatments (topiramate and flunarizine) and was currently stable under valproic acid 250 mg/daily as prophylaxis. She had never been given propranolol as a preventive treatment. As an abortive treatment, the patient was taking eletriptan 40 mg as needed. She did not take anti-emetics or other drugs with ANS activity.

The patient had a history of cardiac ablation at 31 years old due to atrioventricular nodal reentry nodal tachycardia and was considered cured, with a follow-up electrocardiogram (ECG) depicting sinus rhythm with no need for further follow-up. There was no family history of neurological or cardiac disease.

In 2021, she reported more than ten episodes of brief and sudden loss of consciousness during six months. These episodes occurred exclusively during migraine attacks and after vomiting and had no warning. There was no relation with migraine pain level, nor did the episodes happen when

1. Service of Neurology. Department of Neurosciences and Mental Health. Hospital de Santa Maria. Unidade Local de Saúde Santa Maria. Lisbon. Portugal.
2. Centro de Estudos Egas Moniz. Faculdade de Medicina. Universidade de Lisboa. Lisbon. Portugal.
3. Faculty of Medicine. Universidade de Lisboa. Lisbon. Portugal.
✉ **Autor correspondente:** Mariana Dias da Costa. marianaddc254@gmail.com
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the patient vomited for other reasons, such as gastroenteritis. There was no association with involuntary movements, tongue biting, urinary incontinence, or post-episode drowsiness or confusion. The patient denied autonomic symptoms in between attacks, such as lightheadedness, visual blurring, or palpitations.

An ECG performed in the interictal period was normal. A 24-hour Holter monitoring was performed, and it happened to coincide with a migraine attack. It disclosed a transient complete atrio-ventricular (AV) block (with a pause of up to 10 seconds – Fig. 1), associated with an episode of syncope.

Cardiac enzymes, echocardiogram, and cardiac magnetic resonance imaging were unremarkable, and there was no evidence of other conduction abnormalities. The patient was implanted with a double-chamber pacemaker, and despite repeated vomiting, there was no syncope recurrence in subsequent attacks.

DISCUSSION

Syncope requires a broad differential diagnosis that includes reflex or neurally mediated syncope (including vasovagal syncope due to pain, fear, or standing for a long time; situational syncope in relation to coughing, vomiting, or sneezing); syncope due to orthostatic intolerance, cardiac syncope (in relation to cardiac arrhythmias or cardiac structural disease); epileptic seizures; and psychogenic manifestations.[4]

We describe a rare case of syncope that was due to an intermittent complete atrioventricular block occurring exclusively during migraine attacks in a patient with no evidence of structural heart disease, normal interictal ECG, no previous history of hypertension or coronary artery disease, no previous family history of cardiac disease, and who was effectively treated with cardiac pacing.

A relationship between current events and the patient's cardiac ablation twenty years ago is highly unlikely, if not impossible, as complete AV block is a rare immediate complication of cardiac ablation presenting only days to weeks after the procedure.[5]

In the general population, cardiac syncope occurs in approximately 40% of patients with newly diagnosed AV block.[6] Autonomic nervous system impairment in migraine has been previously described and can include, among others, cardiac manifestations. There have been a few observational studies on cardiac autonomic impairment in migraine patients. Most of them evaluated patients in between attacks, with scarce results during migraine attacks. In the interictal period, results have been inconsistent and mixed, although most studies reported probably a degree of reduced sympathetic function in migraine patients. One study evaluated 10 patients during a migraine attack and was not able to demonstrate any differences regarding cardiac autonomic reflexes during the ictal phase.[7] In this case, we hypothesize that syncope may have a cardiac origin due to cardiac sympathetic hypofunction during the migraine crises.

On the other hand, syncope in this patient always occurred after vomiting. Therefore, we cannot exclude a situational syncope component due to parasympathetic transient hyperactivity with increased vagal tone.[4]

No direct effect on the ANS has been associated, to date, with triptans, valproic acid, or statins. As such, an iatrogenic component for syncope in this case is an unlikely possibility.[8-10]

Cardiac pacing was the chosen treatment in this patient. Although some cardiologists do prefer cardioneuroablation as a first-line treatment for vagal syncope, especially in younger patients, there are still no clinical trials assessing its efficacy against standard treatment such as pacemaker implantation.[11]

Prompt detailed history-taking, physical examination, and ancillary studies should be sought out when in suspicion of syncope occurring during migraine attacks. If cardiac conduction abnormalities are documented, a multidisciplinary approach, including a cardiologist consultation and prolonged monitoring attempting to coincide with an attack, may be necessary for adequate and effective treatment.[4,12]

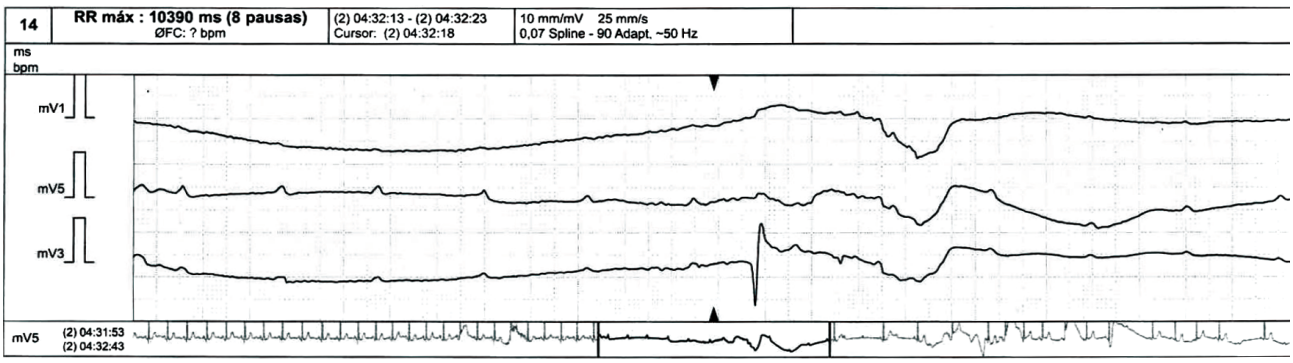

Figure 1 – 24-Holter monitoring during a migraine attack disclosing a period of intermittent complete atrioventricular block, with P waves with no relationship with QRS complexes, lasting up to 10 seconds, after vomiting and coincident with syncope

This report adds to the knowledge on clinical presentations of rare and serious cardiac conduction abnormalities due to ANS impairment during migraine attacks, which clinicians should be aware of. We highlight the importance of performing additional investigation of syncope in migraine, preferably during migraine attacks; otherwise, treatable cardiac manifestations could be missed.

PREVIOUS AWARDS AND PRESENTATIONS

Sociedade Portuguesa de Cefaleias' 2023 Spring meeting.

AUTHOR CONTRIBUTIONS

All authors contributed equally to this manuscript and approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in 2013.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

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ACTA MÉDICA PORTUGUESA
A Revista Científica da Ordem dos Médicos

Cutaneous Manifestations Related to Glycemic Control

Manifestações Cutâneas Relacionadas com Controlo Glicémico

Alexandra RAMOS RODRIGUES✉[1], Ana Luísa MATOS[2], Carlos Pedro MENDES[1]
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Keywords: Blood Glucose; Diabetes Complications; Diabetes Mellitus, Type 1; Skin Diseases/etiology
Palavras-chave: Complicações da Diabetes; Diabetes Mellitus Tipo 1; Doenças da Pele/etiologia; Glicose no Sangue

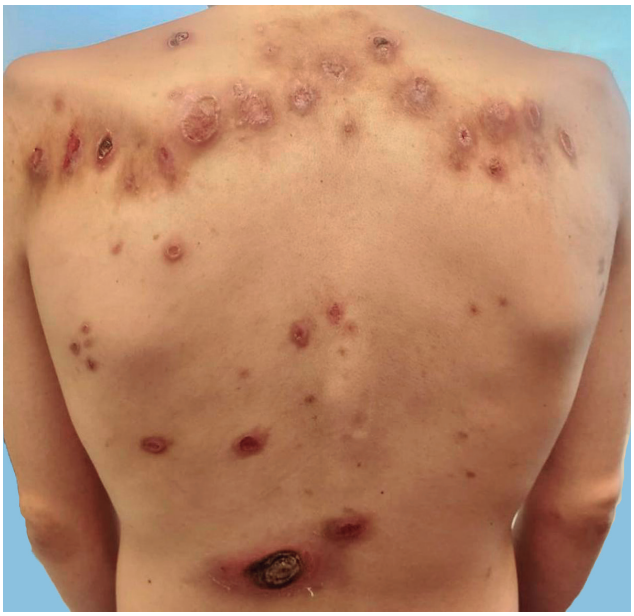

Figure 1 – Multiple nodular and papular ulcerated and erosive lesions with a keratotic central area observed on the back in the first appointment

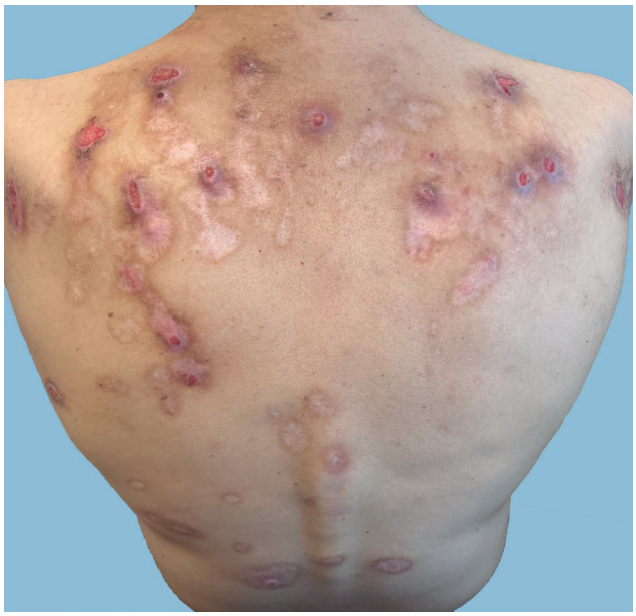

Figure 2 – Acquired perforating dermatosis lesions observed on the back after UVB phototherapy

A 30-year-old male with type 1 diabetes, diagnosed at 16, with poor glycemic control (glycated hemoglobin 16%) developed microvascular complications: proliferative diabetic retinopathy with ischemic maculopathy (undergoing laser treatment since 2023) and peripheral/autonomic neuropathy.

The patient was referred to a dermatologist due to skin lesions developed over a one-month period. Upon examination, nodular/papular, ulcerated, erosive lesions with keratotic center were observed on his back and lower limbs (Fig. 1). Some lesions had purulent drainage and caused pruritus. An incisional biopsy was performed, and topical corticosteroids and antibiotics were initiated. Acquired perforating dermatosis was confirmed. Treatment with 45 UVB phototherapy sessions significantly improved the skin lesions (Fig. 2).

Acquired perforating dermatosis is a visible manifestation of poor glycemic control, serving as a red flag to manage the underlying disease.[1,2] Early diagnosis is crucial to minimize long-term consequences.[3] To improve his overall health, the patient is under the support of multiple health care providers.

AUTHOR CONTRIBUTIONS

ARR: Writing of the manuscript.
ALM, CPM: Critical review of the manuscript.
All authors approved the final version to be published.

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The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

1. Unidade de Saúde Familiar João Semana. Ovar. Portugal.
2. Serviço de Dermatologia. Unidade Local de Saúde de Aveiro. Aveiro. Portugal.
✉ **Autor correspondente:** Alexandra Ramos Rodrigues. alexandralrrodrigues@gmail.com
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ACTA MÉDICA PORTUGUESA
A Revista Científica da Ordem dos Médicos

Perturbação de Hiperatividade/Défice de Atenção no Adulto: Um Posicionamento de Peritos Portugueses sobre Diagnóstico e Tratamento

Attention Deficit/Hyperactivity Disorder in Adults: Position of Portuguese Experts on Diagnosis and Treatment

Nuno MADEIRA[1,2,3], Gustavo FRANÇA[4,5], Gustavo JESUS[6,7,8], João M. FERNANDES[9], Susana S. ALMEIDA[10,11,12], Carlos N. FILIPE✉[13]
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RESUMO

A perturbação de hiperatividade e défice de atenção (PHDA) é uma perturbação do neurodesenvolvimento que frequentemente persiste na vida adulta, afetando aproximadamente 1,5% - 3% da população adulta em Portugal. A PHDA não tratada em adultos está ligada a um risco aumentado de abuso de substâncias, criminalidade, baixo desempenho académico e profissional. Menos de 20% dos adultos com PHDA são diagnosticados e tratados adequadamente, devido a sintomas sobrepostos com outras perturbações mentais, à existência de comorbilidades, ou ao desconhecimento e preconceitos sobre esta perturbação. Este documento de posicionamento resulta da realização de reuniões de peritos envolvendo seis psiquiatras portugueses experientes na gestão da PHDA em adultos. Visa orientar estratégias de diagnóstico e tratamento, bem como abordar as principais barreiras e limitações no acompanhamento destes doentes no contexto português, ao nível do diagnóstico e tratamento. Este documento pretende ainda esclarecer e desmistificar preconceitos, aumentar a consciencialização médica e promover a discussão para a elaboração de diretrizes para melhorar o diagnóstico, tratamento e qualidade de vida dos adultos com PHDA em Portugal.
Palavras-chave: Adulto; Perturbação de Hiperatividade com Défice de Atenção/diagnóstico; Perturbação de Hiperatividade com Défice de Atenção/tratamento; Portugal

ABSTRACT

Attention deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that often persists into adulthood, affecting approximately 1.5% - 3% of the adult population in Portugal. Untreated ADHD in adults is associated with increased risks of substance abuse, criminality, poor academic and professional performance. Less than 20% of adults with ADHD are properly diagnosed and treated due to overlapping symptoms with other psychopathological comorbidities, lack of awareness, and prejudice surrounding this disorder. This position paper results from expert meetings involving six Portuguese experts in managing adult ADHD. It aims to guide diagnostic and treatment strategies, as well as address the main barriers and limitations in managing these patients within the Portuguese context, specifically regarding diagnosis and treatment. Furthermore, it seeks to clarify and demystify associated misconceptions, increase medical awareness, and promote discussion for the development of guidelines to improve the diagnosis, treatment, and quality of life of adults with ADHD in Portugal.
Keywords: Adult; Attention Deficit Disorder with Hyperactivity/diagnosis; Attention Deficit Disorder with Hyperactivity/therapy; Portugal

INTRODUÇÃO

A perturbação de hiperatividade e défice de atenção (PHDA) é uma perturbação do neurodesenvolvimento com início na infância, que apresenta uma prevalência mundial na população adulta estimada em 2,5% (1,5% - 3% em Portugal) e uma etiologia multifatorial com forte componente genética associada.[1-4] Apesar de surgir na infância com posterior persistência da sintomatologia em adulto (15% - 65% dos doentes), o diagnóstico de PHDA na idade adulta pode surgir sem diagnóstico prévio na idade pediátrica.[5-8] Além disso, novas evidências apontam para que a PHDA possa ter uma evolução flutuante, com períodos de sintomas ausentes ou ligeiros com funcionalidade preservada, seguidos por períodos de sintomatologia evidente e disfunção agravada – o que poderá explicar os doentes adultos com PHDA sem histórico de sintomatologia suficientemente intensa ou disruptiva na infância/adolescência.[9] Existem ainda quadros clínicos de PHDA secundária no adulto subsequentes a situações como encefalites virais ou traumatismos crânio-encefálicos, tendo mecanismos fisiopatológicos distintos da condição primária.[10,11]

1. Coimbra Institute for Biomedical Imaging and Translational Research/ Instituto de Ciências Nucleares Aplicadas à Saúde (CIBIT/ICNAS). Universidade de Coimbra. Coimbra. Portugal.
2. Instituto de Psicologia Médica. Faculdade de Medicina. Universidade de Coimbra. Coimbra. Portugal.
3. Centro de Responsabilidade Integrado de Psiquiatria. Unidade Local de Saúde de Coimbra. Coimbra. Portugal.
4. Serviço Local de Saúde Mental do Porto Ocidental. Hospital de Magalhães Lemos. Unidade Local de Saúde de Santo António. Porto. Portugal.
5. Instituto de Ciências Biomédicas Abel Salazar. Universidade do Porto. Porto. Portugal.
6. Serviço de Psiquiatria. Hospital de Vila Franca de Xira. Unidade Local de Saúde do Estuário do Tejo. Lisboa. Portugal.
7. Católica Medical School. Universidade Católica Portuguesa. Rio de Mouro. Portugal.
8. Partners in Neuroscience (PIN). Paço de Arcos. Portugal.
9. Centro de Apoio ao Desenvolvimento Infantil (CADIn). Instituição Particular de Solidariedade Social. Cascais. Portugal.
10. Serviço de Psiquiatria. Instituto Português de Oncologia. Porto. Portugal.
11. Faculdade de Medicina. Universidade do Porto. Porto. Portugal.
12. Hospital CUF Porto. Porto. Portugal.
13. NOVA Medical School. Universidade NOVA de Lisboa. Lisboa. Portugal.
✉ **Autor correspondente:** Carlos N. Filipe. carlos.filipe@nms.unl.pt
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Doentes com PHDA não tratados apresentam, comparativamente à população geral, um risco acrescido de abuso e dependência de substâncias, acidentes, criminalidade, baixo desempenho académico e profissional, rejeição social por pares e conflitos familiares.[12-15] Além disso, estes doentes apresentam um risco aumentado de obesidade, suicídio e morte prematura.[16] Apesar do profundo impacto funcional, psicossocial e económico, menos de 20% dos adultos com PHDA são corretamente diagnosticados e tratados.[17-19] O subdiagnóstico, e consequentemente subtratamento, resultam sobretudo da existência de sintomas sobreponíveis entre PHDA e outras perturbações psiquiátricas, bem como da ocorrência frequente de comorbilidades e preconceitos sobre esta condição.[18] O reconhecimento precoce pelos profissionais de saúde e o tratamento eficaz da PHDA no adulto, e das suas complicações, são cruciais para alterar o curso natural desta perturbação e diminuir a probabilidade de surgimento de comorbilidades no decorrer da vida adulta. Desta forma será possível minimizar o risco e sofrimento destes doentes.

Neste sentido, seis psiquiatras portugueses com vasta experiência na gestão da PHDA no adulto tiveram um conjunto de reuniões de peritos, com o intuito de elaborar um documento orientador das estratégias de diagnóstico e tratamento nesta condição, abordando as principais barreiras encontradas no acompanhamento destes doentes no contexto português. Este documento, baseado na evidência científica e na experiência clínica dos peritos, pretende informar sobre as práticas de referência, capacitando a comunidade médica para a gestão da PHDA no adulto, de forma a melhorar o acompanhamento e a qualidade de vida destes doentes.

MANIFESTAÇÕES CLÍNICAS E DIAGNÓSTICO DA PHDA NO ADULTO

À semelhança da idade pediátrica, o núcleo sintomático central da PHDA inclui sintomas de desatenção, de hiperatividade e impulsividade. No entanto, a sua expressão fenotípica varia ao longo do desenvolvimento e envelhecimento da pessoa, numa interação complexa com fatores sociais e contextuais. Na idade adulta, os sintomas de hiperatividade tendem a diminuir de intensidade, evidenciando-se a predominância da apresentação desatenta no quadro clínico.[20] As queixas comuns destes doentes incluem inquietação (mental e interior), dificuldades atencionais e mnésicas, dificuldades na gestão do tempo, das atividades e das rotinas, procrastinação – cujos impactos combinados frequentemente resultam em baixa autoestima, autoeficácia comprometida e oscilações emocionais acentuadas.

As origens mais comuns para a consulta de PHDA, de acordo com os peritos, estão sumariadas na Fig. 1. Em contexto hospitalar, uma proporção significativa de doentes com PHDA realiza uma transição direta, provenientes dos serviços de pedopsiquiatria, ou de neuropediatria e de pediatria de desenvolvimento, quando atingem os 18 anos de idade. Estes doentes podem ter uma apresentação clínica mais grave e um maior risco de comorbilidades (com outros quadros do neurodesenvolvimento, por exemplo). No entanto, um grande número destes doentes não transita na consulta após atingir a maioridade.[21] Outro grupo de doentes é constituído por adultos que podem ser autorreferenciados, ou, nos cuidados de saúde primários, referenciados através do médico de medicina geral e familiar, por apresentarem sintomas que afetam o seu desempenho académico ou laboral, e sobre os quais recai uma suspeita de PHDA. Outro grupo comum é composto por doentes cujos familiares de primeiro grau ou pessoas próximas receberam o diagnóstico de PHDA e, ao verem confirmados os seus próprios sintomas, procuram também uma avaliação formal.

Estabelecimento de diagnóstico de PHDA em adultos

Atualmente, diversas normas de orientação clínica internacionais disponibilizam orientações detalhadas sobre os métodos de diagnóstico da PHDA em adultos.[22-25] De forma consensual, a melhor estratégia diagnóstica de PHDA no adulto é a entrevista clínica minuciosa, que permite averiguar a existência de sinais e sintomas de disfunção desde a infância, com uma avaliação da disfunção e impacto provocados por estes sintomas, nos diferentes domínios da vida do doente. Estes sinais devem ser pesquisados retrospetivamente e identificada a sua presença antes dos 12 anos de idade, e são espelhados nos critérios constantes no "Manual de Diagnóstico e Estatísticas das Perturbações Mentais" (DSM-5).[26] Contudo, estes critérios são, por vezes, considerados insuficientes, e a divisão em apenas duas dimensões sintomáticas (défice de atenção e hiperatividade/impulsividade) merece ser revista. Considera-se atualmente que a impulsividade e hiperatividade constituem dimensões sintomáticas distintas, e é cada vez mais consensual que deverá ser considerada uma quarta dimensão – a desregulação emocional – como fazendo parte do núcleo sintomático da PHDA, e não tanto uma comorbilidade associada.[25] É também essencial considerar o impacto combinado dos sintomas, mesmo que o indivíduo não preencha a totalidade dos critérios de diagnóstico do DSM-5.[26] Isto é particularmente importante em doentes com quadros clínicos atípicos ou com comorbilidades (como a perturbação de desenvolvimento intelectual, ou a perturbação do espectro do autismo) que possam dificultar a avaliação sintomática. A utilização da entrevista semiestruturada *Diagnostic Interview for ADHD in Adults* (DIVA; versão em português de Portugal disponível em: http://www.divacenter.eu) na entrevista clínica é de

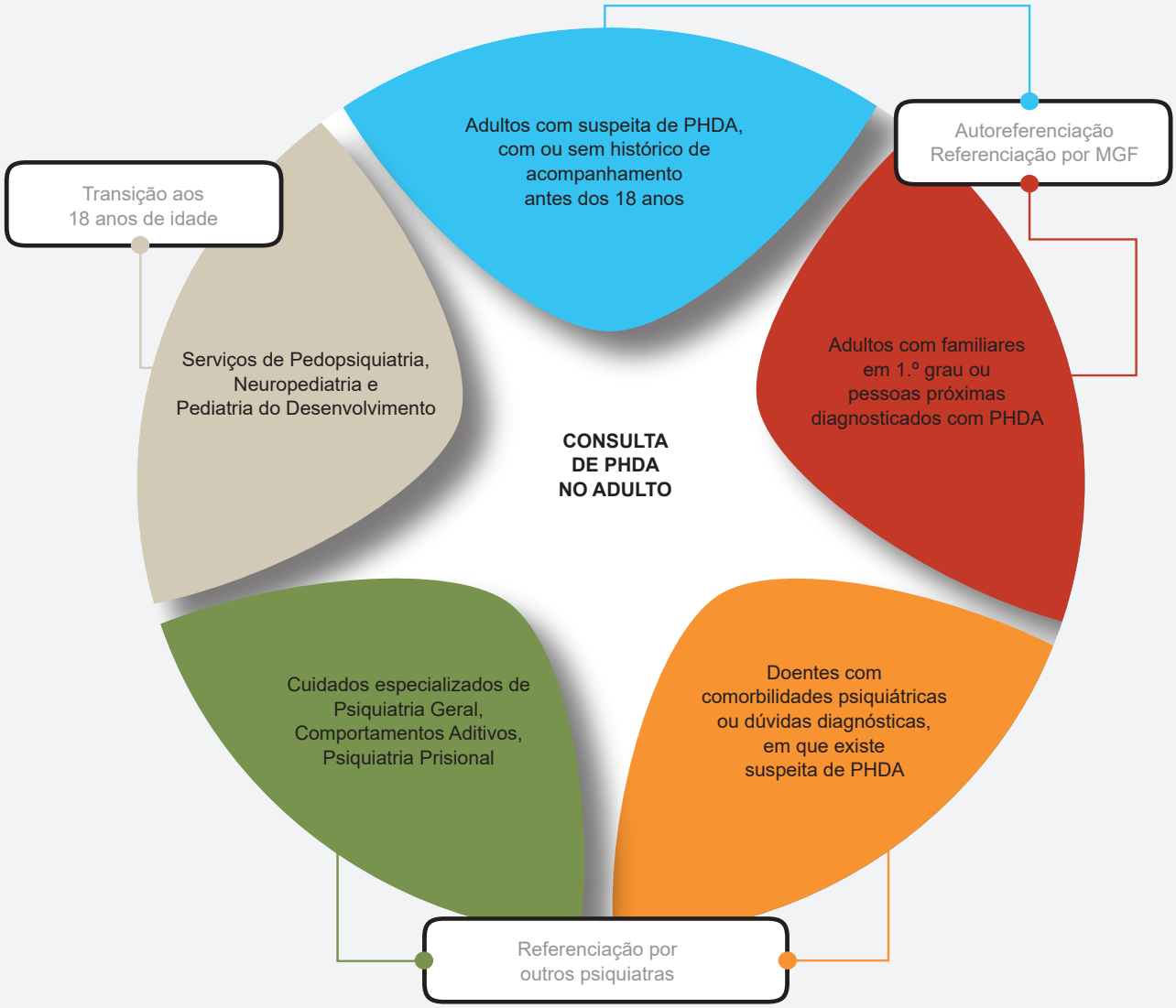

Figura 1 – Origens de referenciação na consulta de PHDA no adulto
MGF: medicina geral e familiar; PHDA: perturbação de hiperatividade/défice de atenção.

grande utilidade,[27] já que fornece aos psiquiatras uma estrutura padronizada para avaliação sintomatológica e aos doentes fornece exemplos práticos para reflexão sobre a presença da perturbação na infância e vida adulta. Outro exemplo de entrevista semiestruturada é a *ADHD Child Evaluation* (ACE/ACE+/ACEv.2; versão em português do Brasil disponível em: https://www.psychology-services.uk.com/adhd), que embora mais pormenorizada na avaliação de aspetos da infância e adolescência, não se encontra atualmente validada em português de Portugal. Existem também disponíveis escalas de (auto)avaliação sintomática e rastreio de PHDA em indivíduos adultos[28,29] – contudo, os peritos salientam que a sua utilização deverá ser cautelosa e sempre complementada com uma entrevista clínica para garantir um diagnóstico preciso.

É crucial investigar a presença de sintomas na infância, a persistência dos mesmos e a sua manifestação em diversos contextos sociais e de funcionamento individual na vida adulta (Tabela 1). Além da pesquisa específica dos sintomas da PHDA, também é importante investigar outros sinais e sintomas frequentemente associados, como labilidade do humor, alterações na regulação emocional, alterações no comportamento alimentar e desregulação do ciclo de sono-vigília, bem como baixa tolerância à frustração e a presença de comorbilidades psiquiátricas. Os possíveis vieses de memória, comprometimento da memória dos factos e a grande capacidade de adaptação e compensação destes doentes podem comprometer o rigor da informação

Tabela 1 – Principais *red flags* para a suspeição do diagnóstico de PHDA no adulto

Perturbação de uso de substâncias, refratária a várias intervenções médicas e psicológicas.
Perturbações depressivas e perturbações ansiosas, resistentes a várias intervenções psicofarmacológicas, psicoterapêuticas ou neuromodulação.
Sintomas cognitivos persistentes, eventualmente sem tradução em avaliação neuropsicológica formal, e não explicados por outra doença neurológica (ex., perturbação neurocognitiva *minor*, esclerose múltipla) ou perturbação mental (ex., depressão).
Quadro psicopatológico atípico, na presença de alterações no período do neurodesenvolvimento e/ou história familiar em 1º grau de perturbações do neurodesenvolvimento.
Padrão de instabilidade académico e/ou laboral.
Personalidade caracterizada por um evitamento do tédio e desinteresse por tarefas repetitivas, e por uma busca pela novidade (*novelty-seeking*).
Dificuldades nas atividades de condução, traduzida em vários acidentes de viação, ou multas frequentes.
Padrão de instabilidade nos relacionamentos amorosos, de difícil enquadramento na personalidade do individuo.
Perturbação do desempenho pessoal (noção de uma dissociação entre o potencial subjetivo da pessoa e a sua realização no concreto).
Respostas paradoxais à cafeína e a drogas recreativas com propriedades estimulantes.
Padrão de violência interpessoal, predominantemente em contexto impulsivo, e histórico de delitos.

recolhida durante a entrevista clínica. Deste modo, deverá ser considerada a hétero-anamnese com um familiar ou elemento próximo. Esta validação permite também diminuir o risco de simulação.[30,31] Em alguns casos, a avaliação neuropsicológica pode ser útil, nomeadamente nos adultos com défice cognitivo ou dificuldades de aprendizagem.[32]

Comorbilidades enquanto fatores confundidores do diagnóstico

A PHDA em adultos está frequentemente associada à presença de comorbilidades, o que dificulta o seu reconhecimento e diagnóstico. Até 80% dos adultos com PHDA apresentam pelo menos uma comorbilidade psiquiátrica,[33,34] que pode incluir perturbações de ansiedade (34%), perturbações do humor (22%), perturbações da personalidade (15%) e perturbações de uso de substâncias (11%).[35] Os autores consideram fundamental identificar e gerir eficazmente as comorbilidades (ex., perturbações do humor, ansiedade, alimentares, do sono, somáticas e por uso de substâncias, além de perturbações da personalidade, tiques e do espetro do autismo).

A questão do subdiagnóstico pode ser particularmente premente nas mulheres adultas com PHDA. Nestes casos, o quadro clínico pode cursar com um predomínio de sintomas atencionais e emocionais, numa apresentação que é, fundamentalmente, sentida pela própria, bem como estarem presentes comorbilidades com perturbações depressivas e ansiosas, que podem confundir-se com outros quadros psiquiátricos e dificultar ou atrasar o diagnóstico.[36] Dado que os doentes adultos com PHDA apresentam frequentemente uma baixa autoestima, humor deprimido, labilidade emocional e irritabilidade, estes sintomas são muitas vezes confundidos com distimia, ciclotimia, perturbação afetiva bipolar e perturbação de personalidade *borderline*. As flutuações diárias de humor podem ser comuns em alguns doentes com PHDA, surgindo tipicamente com um desencadeante identificável e representar uma desregulação emocional, em oposição a períodos mais longos de variação de humor, com episódios depressivos ou hipomaníacos/maníacos sem desencadeante evidente, habitualmente presentes nos doentes do espectro bipolar. A PHDA e a perturbação de personalidade *borderline* podem partilhar sintomas de impulsividade, instabilidade do humor, explosões de raiva e sentimentos de tédio. No entanto, no adulto com PHDA, por oposição ao doente com perturbação de personalidade *borderline*, a impulsividade e a raiva são, caracteristicamente, passageiras e impulsivas em vez de direcionadas, e os conflitos nos relacionamentos, ideação suicida, automutilação, perturbações da identidade e sentimentos de abandono geralmente menos intensos. Outra condição clínica que poderá confundir-se ou sobrepor-se à PHDA no adulto é a perturbação obsessiva-compulsiva, pela possível existência de comportamentos repetitivos compensatórios (desenvolvidos pelos doentes para fazer face às dificuldades atencionais), que deverão ser distinguidos de rituais compulsivos.

Além das comorbilidades psiquiátricas, deverão ser também avaliadas as comorbilidades físicas, nomeadamente a síndrome metabólica, obesidade e doenças cardiovasculares – dada a ligação conhecida entre a PHDA e

Tabela 2 – Principais barreiras e desafios ao diagnóstico da PHDA no adulto

O estigma e o desconhecimento que rodeiam a PHDA no adulto, dada a insuficiente literacia na sociedade e a falta de formação especializada nos profissionais de saúde.
A ausência de uma história clínica completa do indivíduo nos diferentes domínios da sua vida, desde a infância até à vida adulta, assim como da história familiar.
Dificuldade no acesso a consultas especializadas nos serviços de saúde públicos.
Os custos elevados associados ao acompanhamento nos serviços de saúde privados.
Baixa sensibilidade da comunidade médica, especialmente entre os médicos de medicina geral e familiar e os psiquiatras de adultos, para o diagnóstico e tratamento adequados.
A presença de 'comorbilidades' que muitas vezes são consequências do impacto funcional da PHDA e cuja apresentação é muitas vezes priorizada pelos profissionais de saúde, em detrimento da própria PHDA.
Insuficiente consciencialização e formação adequada dos cuidados primários de saúde para identificação e referenciação de padrões familiares de PHDA.
O desenvolvimento de estratégias compensatórias pelos doentes adultos para lidar com os sintomas presentes desde a infância e adolescência.

estas condições.[37] A despistagem de alergias/asma, doenças autoimunes, apneia do sono, e a avaliação basal do peso corporal, tensão arterial e da função cardíaca constituem uma mais-valia adicional, também em termos de efeitos de monitorização da tolerabilidade e segurança do tratamento farmacológico.

Principais barreiras e desafios ao diagnóstico identificados pelos peritos

Apesar do crescente reconhecimento desta perturbação, a PHDA continua a ser amplamente subvalorizada e subdiagnosticada – na Tabela 2 encontram-se elencadas as principais barreiras e desafios ao diagnóstico desta condição encontradas na prática clínica dos autores.

GESTÃO DA PHDA NO ADULTO

O tratamento da PHDA no adulto envolve uma abordagem multifacetada, englobando diversas modalidades terapêuticas.[14] As intervenções terapêuticas abrangem abordagens psicoterapêuticas, nas quais se destacam as terapias comportamentais e cognitivas, e abordagens psicossociais e ocupacionais. No entanto, a primeira linha de tratamento, amplamente reconhecida pela sua eficácia, é o tratamento farmacológico.

A seleção do tratamento para estes doentes deve ser informada, em primeiro lugar, pela eficácia em termos de resultados funcionais, que incluem a redução dos sintomas e a melhoria do funcionamento diário, das relações interpessoais e da qualidade de vida. Independentemente da estratégia terapêutica escolhida, os seus objetivos deverão ser sempre alinhados às expetativas do doente e deverão priorizar as principais áreas de disfunção ou de impacto dos sintomas reportados (Fig. 2). É de realçar o efeito benéfico lato da terapêutica farmacológica em sintomas não percecionados nem reportados pelo doente, causando uma melhoria do bem-estar do doente de forma global em diferentes domínios da vida.

As opções terapêuticas farmacológicas atualmente disponíveis para o tratamento da PHDA em adultos englobam os psicoestimulantes, como o metilfenidato e as anfetaminas, geralmente prescritos como primeira linha devido à sua eficácia, tolerabilidade e segurança,[22] e os não-psicoestimulantes, como a atomoxetina e os agonistas α2 (Tabela 3). Entre os fármacos psicoestimulantes, as anfetaminas têm sido uma escolha preferida tanto pelos profissionais de saúde quanto pelos próprios doentes, devido à sua eficácia superior no controlo dos sintomas comparativamente ao metilfenidato e com semelhante tolerabilidade, conforme reportado em duas recentes meta-análises.[38,39] Devido à sua eficácia reconhecida, as anfetaminas são atualmente consideradas a primeira escolha de tratamento pelo "Consenso Europeu para o Diagnóstico de Tratamento da PHDA no Adulto".[25]

Antes de iniciar o tratamento farmacológico, é importante debater com cada doente os benefícios e efeitos adversos das opções disponíveis, importância dos hábitos saudáveis (ex. exercício físico), presença de outros sintomas

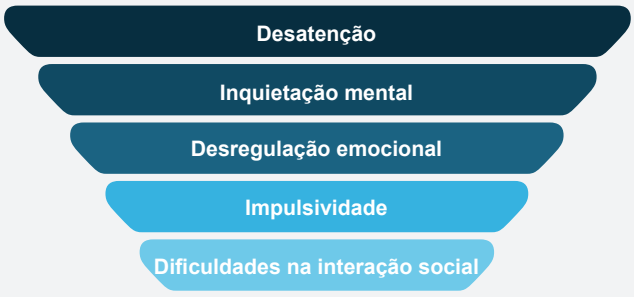

Figura 2 – Hierarquia das queixas frequentemente reportadas pelos doentes adultos com PHDA e alvo de expectativa de tratamento

Tabela 3 – Estratégias farmacológicas disponíveis em Portugal para a PHDA, de acordo com a experiência clínica dos autores e baseado nas *Maudsley Prescribing Guidelines*[44]

Fármaco	Início da ação	Dose diária inicial mais comum	Dose diária máxima mais comum	Duração do efeito
Dimesilato de lisdexanfetamina	20 - 60 minutos	30 mg	70 mg	Até 14 horas
Metilfenidato longa ação (libertação prolongada)	30 min - 2 horas	18 mg	54 mg	12 horas
Metilfenidato média ação (libertação modificada)	30 - 60 minutos	20 mg	60 mg	8 horas
Metilfenidato curta ação (libertação imediata)	20 - 60 minutos	10 mg x 3	30 mg x 3	4 horas
Atomoxetina	4 - 6 semanas	40 mg	80 mg	Constante após três semanas de estabilização do efeito

ou comorbilidades psiquiátricas, importância da boa gestão e adesão ao tratamento, e avaliação das preferências pessoais e preocupações presentes.[22] Os fármacos aprovados para o tratamento da PHDA no adulto apresentam um conjunto diversificado de vantagens e desvantagens, permitindo uma escolha personalizada ao doente. O dimesilato de lisdexanfetamina, geralmente usado como primeira linha, destaca-se pelo seu efeito mais prolongado e menor potencial de abuso em comparação com outras formulações de anfetaminas (não disponíveis em Portugal). As formulações de metilfenidato de longa e média ação (libertação prolongada e modificada, respetivamente) proporcionam efeitos mais prolongados, embora a sua duração de ação seja inferior à jornada diária (particularmente importante no caso dos adultos que necessitam de manter o desempenho no ambiente familiar, após o período laboral). Já o metilfenidato de curta ação (libertação imediata) oferece um início de ação rápido e é útil como coterapia de efeito curto, mas apresenta um potencial de uso abusivo e uma curta duração de efeito. Por fim, a atomoxetina é uma alternativa para doentes que não tolerem psicoestimulantes, mas pode causar efeitos secundários noradrenérgicos que deverão ser devidamente ponderados e é menos eficaz no tratamento dos sintomas.

Os médicos que iniciem tratamento farmacológico para PHDA deverão estar familiarizados com os perfis farmacocinéticos das diversas formulações disponíveis de psicoestimulantes, adequando a sua escolha às necessidades individuais do doente adulto (ex., situações de gestão familiar complexa, com dupla jornada, após um dia de trabalho; estudantes em regime pós-laboral com empregos em regime integral, com necessárias exigências de tratamento muito prolongado, salvaguardando o tempo devido para o adormecer sem insónia por eventual iatrogenia).[22] Ao prescrever psicoestimulantes deverá ser privilegiada a utilização de formulações de libertação prolongada, de administração única diária, devido ao seu perfil farmacocinético favorável, a sua conveniência, melhor adesão, redução do estigma (ao evitar administrações constantes no contexto profissional ou de ensino) e menor risco de abuso (ex., para desempenho cognitivo, supressão de apetite ou uso recreativo) comparativamente às preparações de libertação imediata. As formulações de libertação imediata podem ser apropriadas se forem necessários regimes posológicos mais flexíveis, ou durante a titulação inicial para determinar os níveis de dosagem corretos. A titulação da dosagem deverá ser feita de forma gradual, sob acompanhamento frequente, sobretudo se existirem comorbilidades associadas, quer psiquiátricas (ex., perturbações de ansiedade, do humor, ou psicóticas, entre outras), quer físicas (ex., doença cardíaca, epilepsia ou história de traumatismo crânio-encefálico).[22] Adicionalmente, na gestão farmacológica da PHDA por períodos de tempo prolongados (mais de 12 meses) poderão ser considerados períodos experimentais sem medicação, de forma ponderada e adaptada ao contexto do doente, para avaliação do seu funcionamento sem farmacoterapia (de preferência durante os períodos de férias escolares ou laborais).

Estratégias não-farmacológicas para gestão da PHDA no adulto

As estratégias não-farmacológicas desempenham um papel fundamental e complementar ao tratamento farmacológico da PHDA, e deverão ser consideradas por todos os profissionais de saúde. A psicoterapia focada no treino de competências, realizada individualmente ou em grupo, tem como objetivo fornecer o suporte necessário para que o doente possa reconhecer e enfrentar os desafios do dia-a-dia. É crucial que o doente aprenda a estabelecer objetivos realistas, definir prioridades, gerir o tempo e o dinheiro, encontrar soluções para os problemas e adotar comportamentos adaptativos. Planear, agendar, criar rotinas, filtrar estímulos externos e usar auxiliares de memória são métodos eficazes para lidar com os problemas de desatenção, desorganização e impulsividade. Além disso, fornecer dicas práticas, fazer acordos, apresentar modificações

necessárias e promover a autodisciplina e resiliência são medidas importantes no acompanhamento clínico destes doentes. Outras estratégias envolvem intervenções psicoterapêuticas focadas nos sintomas básicos da PHDA e as suas consequências, de forma a aumentar e fortalecer o autocontrolo do doente e a alterar padrões comportamentais e de pensamento, caraterísticos da doença.

O uso exclusivo destas estratégias não-farmacológicas pode ser considerado em adultos com PHDA que: i) escolham de forma informada não iniciar medicação; ii) mostrem dificuldades na adesão à medicação; iii) consideram a medicação ineficiente ou intolerável.[22] A opção por tratamento não-farmacológico reforça a necessidade de acompanhamento regular e intervenção psicológica orientada para a PHDA, idealmente estruturada e de base cognitivo-comportamental.[22] Porém, estas abordagens não farmacológicas, quando combinadas com o tratamento farmacológico adequado, podem oferecer uma abordagem integrada e abrangente para a gestão da PHDA em adultos, contribuindo para uma melhoria significativa na qualidade de vida e funcionalidade.

Tratamento da PHDA na presença de comorbilidades

O estabelecimento do plano terapêutico deve considerar tanto a PHDA quanto as possíveis perturbações comórbidas, sendo determinado essencialmente pela gravidade e natureza das diversas condições. A hierarquia de tratamento deverá priorizar as comorbilidades com sintomatologia transitória com potencial de recuperação, e os quadros psicóticos ou afetivos graves que causem elevada disfunção.

A PHDA representa um fator de risco significativo para o abuso de substâncias psicoativas na vida adulta como forma de automedicação, dado o potencial que poderão ter para aliviar sintomas como a agitação, desatenção e os distúrbios do sono associados à inquietação mental, mas também pelo funcionamento do circuito da recompensa decorrente da disfunção dopaminérgica. Neste contexto, o tratamento da PHDA pode ativamente contribuir para a redução dos consumos e para a diminuição da impulsividade, potenciando a manutenção da abstinência. Contudo, a controvérsia em relação ao uso de psicoestimulantes em indivíduos com histórico de consumo de substâncias (sobretudo cocaína ou anfetaminas) persiste, com alguns profissionais a defenderem o adiamento do início do tratamento da PHDA com psicoestimulantes, e início somente após um período de abstinência de várias semanas. Porém, a PHDA não tratada é *per se* um fator de risco conhecido para recaída no uso de substâncias, tendo um impacto negativo na adesão ao tratamento. Consequentemente, a abstinência de substâncias pode ser um objetivo irrealista de alcançar no caso de indivíduos com sintomatologia acentuada de PHDA. Torna-se assim crucial procurar a motivação nestes doentes, e envolvê-los em programas de tratamento integrados, nos quais o tratamento da PHDA surge como o objetivo primordial, juntamente com estratégias específicas para a perturbação por uso de substâncias. Estes doentes beneficiam particularmente de formulações de ação prolongada (como a lisdexanfetamina, o metilfenidato de libertação modificada/prolongada e, eventualmente, a atomoxetina), sendo necessário particular atenção do profissional de saúde para sinais de abuso, como faltar a consultas, solicitar doses mais altas ou mais prescrições.

Tratamento subótimo da PHDA no adulto: preocupações e barreiras

O subtratamento da PHDA em adultos é uma preocupação significativa, pelo aumento do risco de lesões acidentais, insucesso pessoal, académico e laboral, comportamentos sexuais de risco, acidentes de viação, criminalidade, consumo de substâncias e suicídio, com tradução em taxas aumentadas de morte prematura.[40,41] O subtratamento desta condição resulta de uma variedade de motivos, compilados na Tabela 4, que coocorrem, em muitos dos casos, colocando os doentes em particular risco e sofrimento. O receio e desconhecimento por parte dos profissionais de saúde em lidar com estes doentes e a sua abordagem farmacológica é um fator crítico, que exige uma abordagem educacional reforçada.[21] O preconceito errado do risco aumentado de mortalidade com o uso de psicoestimulantes nestes doentes, apesar da sua comprovada segurança,[42]

Tabela 4 – Principais razões para o tratamento subótimo da PHDA no adulto em Portugal

Receios, dificuldades e carência de formação especializada por parte dos clínicos, sobre os mecanismos de ação, eficácia e segurança, tempos de ação e os modos de atingir as doses terapêuticas dos psicoestimulantes necessárias para estabilizar o doente, resultando em doses insuficientes.
Adesão irregular ao tratamento psicofarmacológico, frequentemente motivada por estigma e receio de dependência.
Escolha inadequada do fármaco, que pode não estar adaptado ao doente e ao seu contexto.
Escassez de profissionais especializados e de consultas especializadas no Serviço Nacional de Saúde.
Ausência de equipas multidisciplinares e de protocolos de transição da consulta de pediatria do desenvolvimento/pedopsiquiatria, na maioria dos serviços de psiquiatria.

também é uma preocupação que os profissionais de saúde referem. O sucesso do tratamento é impactado pelas próprias questões organizacionais dos cuidados de saúde em Portugal, dada a ausência de consultas especializadas e equipas multidisciplinares para o acompanhamento destes doentes em primeira consulta ou em transição.[21]

Transição do tratamento da PHDA da criança para o adulto

Apesar da clara necessidade de acompanhamento contínuo dos doentes com PHDA durante a transição da idade pediátrica para a adulta, e da necessidade frequente de manter tratamento farmacológico, é evidente que a transição dos serviços de pediatria do desenvolvimento/pedopsiquiatria para os serviços de saúde mental no adulto é ainda muito limitada em Portugal. Esta observação é corroborada pelo estudo nacional de Costa Alves *et al*, que revelou que apenas 4,8% das transferências para a consulta de psiquiatria de adultos era realizada com uma consulta de transição na presença de pediatra do desenvolvimento/pedopsiquiatra e psiquiatra.[21]

A Norma de 2019 da Direção-Geral da Saúde "Abordagem Diagnóstica e Intervenção na Perturbação do Espetro do Autismo em Idade Pediátrica e no Adulto" preconiza a elaboração de protocolos de articulação entre as consultas de especialidade/subespecialidade hospitalar de pedopsiquiatria do desenvolvimento/pedopsiquiatria e de psiquiatria de adultos, bem como a formação de equipas multidisciplinares.[43] Estas medidas visam oferecer apoio durante a transição para a vida adulta e o seguimento em consulta de especialidade hospitalar para adultos. No entanto, tal como demonstrado por Costa Alves *et al*, a falta de formação especializada nesta área dos profissionais de saúde envolvidos e a ausência de equipas multidisciplinares especializadas são evidentes, promovendo o hiato terapêutico e dificultando a transição de cuidados de saúde.[21] Neste sentido, este documento procura fomentar a discussão de abordagens de natureza formativa especializada para os profissionais de saúde, e de natureza organizacional para que sejam implementadas eficazmente consultas especializadas e equipas capazes de apoiar o doente na transição para a idade adulta.

CONCLUSÃO

A PHDA no adulto é frequentemente subdiagnosticada e subtratada, o que pode provocar um impacto considerável na qualidade de vida dos doentes. A falta de diagnóstico e tratamento adequado resulta em dificuldades significativas em várias áreas da vida, incluindo o desempenho profissional, académico e nas relações interpessoais. Este documento de posicionamento, elaborado por peritos portugueses em PHDA no adulto, surge para abordar e tentar

Tabela 5 – Sumário das recomendações dos Peritos portugueses para ultrapassar as principais barreiras e limitações na gestão da PHDA no adulto

Organização dos serviços de saúde: cuidados de saúde primários
Desenvolver programas de formação contínua e especializada para médicos de medicina geral e familiar e psiquiatras de adultos sobre diagnóstico e tratamento da PHDA.
Distribuição e incentivo de utilização de instrumentos de *screening* (como a escala de autoavaliação ASRS) nos cuidados de saúde primários.
Organização dos serviços de saúde: cuidados especializados
Melhorar o acesso a consultas especializadas, aumentando a disponibilidade de profissionais treinados em PHDA.
Estabelecer equipas multidisciplinares e desenvolver protocolos de transição da consulta de pediatria do desenvolvimento/pedopsiquiatria para a psiquiatria de adultos.
Treinar profissionais de saúde para reconhecer e tratar a PHDA como a condição subjacente, diferenciando-a de comorbilidades que são consequências do impacto funcional da PHDA.
Diagnóstico da PHDA
Aumentar a literacia da sociedade através de campanhas de sensibilização e educação sobre PHDA no adulto.
Promover a recolha de uma história clínica detalhada, de forma estruturada, abrangendo todos os domínios da vida do indivíduo desde a infância, assim como o histórico familiar.
Tratamento da PHDA
Abordar o estigma e receios de dependência da medicação estimulante, educando os doentes sobre a importância da adesão regular ao tratamento e os benefícios da medicação adequada.
Assegurar que a escolha do fármaco é adaptada ao doente e ao seu contexto, numa decisão clínica compartilhada.
Abordar de forma personalizada e integrada as comorbilidades psiquiátricas e médicas, associadas à PHDA.

ASRS: *Adult ADHD Self-Report Scale*[28]

ultrapassar algumas destas barreiras e problemas na gestão destes doentes no contexto nacional (Tabela 5). É essencial reconhecer a importância de um diagnóstico preciso e de um tratamento abrangente, que inclua tanto abordagens farmacológicas quanto não farmacológicas, para melhorar a funcionalidade e o bem-estar geral destes doentes. Somente através de uma maior sensibilização e formação dos profissionais de saúde, bem como da implementação de estratégias eficazes de transição dos cuidados pediátricos para os adultos, será possível minimizar o impacto negativo desta perturbação e proporcionar uma melhor qualidade de vida aos doentes com PHDA.

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NM, GF, GJ, JMF, SSA: Conceção, escrita e revisão crítica do manuscrito.

CNF: Supervisão, conceção, escrita e revisão crítica do manuscrito.

Todos os autores aprovaram a versão final a ser publicada.

CONFLITOS DE INTERESSE

NM desempenhou atividade de consultoria para a BIAL, Janssen, Lundbeck e Rovi; desempenhou atividade como palestrante para a Janssen, Lundbeck, Rovi e Tecnifar.

GF desempenhou atividade de consultadoria para a BIAL e Jaba Recordati; desempenhou atividade como palestrante para a Jaba Recordati.

GJ desempenhou atividade de consultadoria para a Abbvie, Angelini, AstraZeneca, Bial, Gilead, ITF Pharma, Jaba Recordati, Janssen-Cilag, Lilly, Lundbeck, Novartis, Rovi, Pfizer, Sanofi, Springer Healthcare, Tecnifar e Tecnimede.

JMF desempenhou atividade de consultadoria para a BIAL, Tecnifar, Laboratórios Atral, Baldacci Portugal e Merck, Sharp & Dohme; recebeu formação remunerada pela Lundbeck Portugal.

SSA participou em congressos e desempenhou atividade como palestrante para a Angelini, AstraZeneca, BIAL, Bristol Meyers Squibb, Grünenthal, Janssen, Krka, Lilly, Lundbeck, MSD, Novartis, Servier, Tecnhipharma; recebeu financiamento para investigação da AstraZeneca; desempenhou atividade de consultadoria para a Angelini, BIAL, Janssen, Lundbeck, MSD, Novartis.

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The Increasing Prevalence of Food Allergies in the Pediatric Populations: A Rising Concern

O Aumento da Prevalência de Alergias Alimentares na População Pediátrica: Uma Preocupação Crescente

Keywords: Child; Food Hypersensitivity
Palavras-chave: Criança; Hipersensibilidade Alimentar

Dear Editor,

We read the article "Anisakis Allergy: Raising Awareness"[1] with great interest and would like to discuss the growing concern about food allergies in the pediatric population. The rise in pediatric food allergies places a burden on healthcare systems, with more frequent cases of anaphylaxis and increasing demand for specialist care.

Recent studies indicate an increasing prevalence of food allergy.[2] While the global prevalence rate is estimated to be 4% of children, this number rises to 8% in Western countries.[3] In our tertiary center, the number of first consultations in pediatric allergy clinics increased 70% in the last twenty years. We also confirm a similar trend, with a remarkable 800% increase in first consultations, where patients were specifically referred for food allergies, over the past two decades (Fig. 1).

The main allergens are cow's milk, eggs, peanuts, tree nuts, fish, among others. Many of these allergies persist into adulthood, having a long-lasting impact on patients' quality of life.

The causes behind this increase remain multifactorial and not fully understood. The hygiene hypothesis suggests that reduced childhood exposure to infections may increase allergy susceptibility. The dual allergen exposure hypothesis emphasises early introduction of allergenic foods and eczema management to reduce food allergy risk. Two landmark studies support this concept: the LEAP study showed that early exposure to peanuts in high-risk infants reduced both primary and secondary allergy risk[4]; and the Enquiring About Tolerance (EAT) study showed similar benefits for peanuts and eggs in healthy children.[5]

Additionally, during early childhood the gut microbiota plays a crucial role in immune development and reducing allergic disease risk. Environmental factors, such as pollution, urbanization, and climate change, are also implicated, while genetic predispositions, particularly in children with a family history of asthma, allergies, or eczema, further increase the risk.[3]

The rise in food allergy cases has led to increased waiting times for both initial consultations and oral food challenge tests in day hospitals, delaying diagnosis and management. This often results in significant stress for families, who must remain vigilant and make ongoing lifestyle adjustments to avoid allergens. The cost of epinephrine auto-injectors, fully reimbursed in Portugal, remains a key factor in accessibility. Another recent achievement is the structured prescription of hydrolyzed milk formulas for managing cow's milk allergy.

Schools and childcare centers are also impacted, facing the challenge of implementing preventive measures and additional training. In Portugal, the *"Saúde Escolar"* program

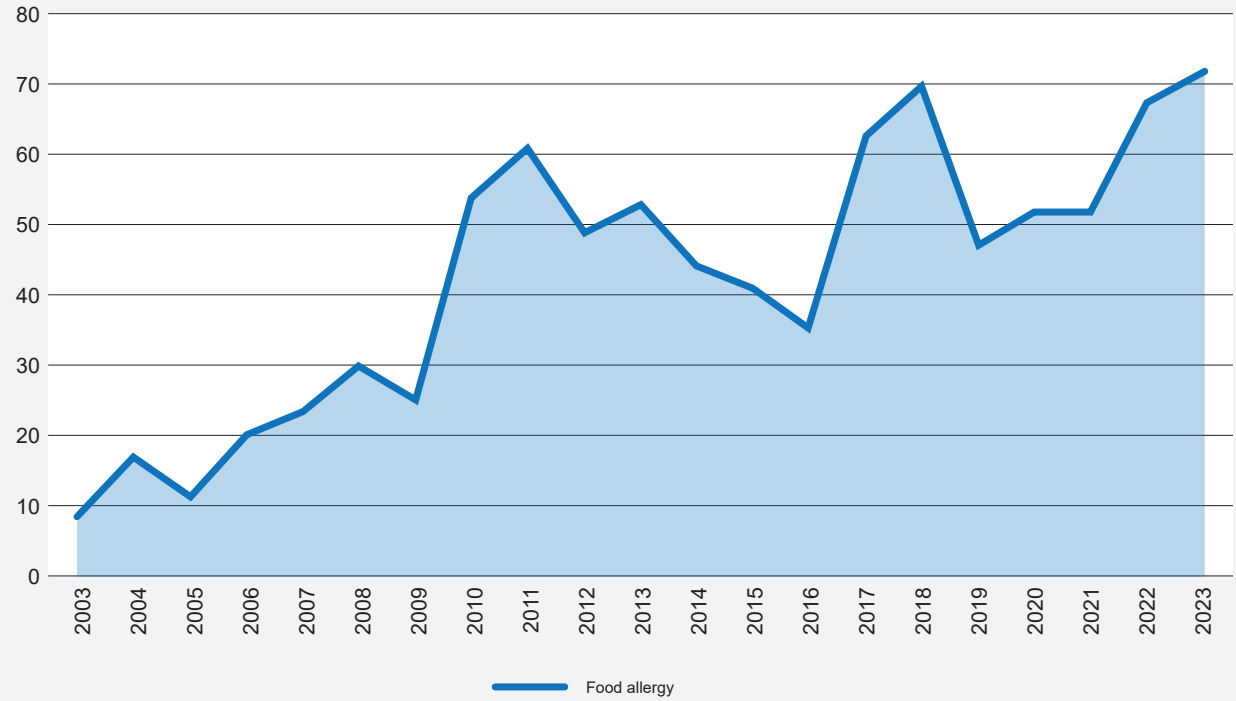

Figure 1 – Evolution of first consultations for food allergies over 20 years. Data from the Unit of Pediatric Immunoallergology and Pulmonology at Gaia Hospital.

offers training for school staff on emergency medications, including the use of adrenaline, and educates canteen staff on preventing cross-contamination. This program has also played an essential role in referring pediatric allergy cases over the past five years.

Further research is essential. Recent guidelines on oral immunotherapy propose several strategies to assist in the effective management of food allergies. In the meantime, pediatricians and pediatric allergists must continue supporting children and their families as they navigate the challenges posed by food allergies.

AUTHOR CONTRIBUTIONS

BPA: Study design, data analysis and interpretation, writing of the manuscript.
FA, JR: Critical review of the manuscript.
HC: Data acquisition, critical review of the manuscript.
CP: Writing and critical review of the manuscript.
All authors approved the final version to be published.

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Beatriz PARREIRA DE ANDRADE✉[1], Filipa ALMEIDA[1], Jorge ROMARIZ[2], Herculano COSTA[2], Cláudia PEDROSA[2]
1. Pediatrics Department. Unidade Local de Saúde do Médio Ave. Vila Nova de Famalicão. Portugal.
2. Unit of Pediatric Immunoallergology and Pulmonology. Unidade Local de Saúde Gaia e Espinho. Vila Nova de Gaia. Portugal.
✉ **Autor correspondente:** Beatriz Parreira de Andrade. beatrizvp.andrade@gmail.com
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Tuberculides Papulonecróticas como Manifestação de Tuberculose Ganglionar

Papulonecrotic Tuberculid as Manifestation of Lymph Node Tuberculosis

Palavras-chave: Tuberculose Cutânea; Tuberculose Ganglionar
Keywords: Tuberculosis, Cutaneous; Tuberculosis, Lymph Node

Caro Editor,

A tuberculose cutânea é incomum, ocorrendo em menos de 2% dos casos de tuberculose extrapulmonar, podendo ser classificada em tuberculose cutânea verdadeira e tuberculides.[1] Na tuberculose cutânea verdadeira, a bactéria *Mycobacterium tuberculosis* é identificada nas lesões cutâneas [seja por meios convencionais como microscopia ou exame cultural, ou por meios moleculares como *polymerase chain reaction* (PCR)]. Tuberculides são reações de hipersensibilidade (reações 'ides') à micobactéria e/ou aos seus antigénios, em que classicamente a micobactéria não é detetável nas lesões cutâneas.[2] Ainda assim, a pesquisa por PCR também pode ser positiva neste último grupo: consoante o padrão de reação no grupo de tuberculides, a percentagem de positividades varia entre 0% - 80%.[2,3] As tuberculides papulonecróticas – juntamente com líquen escrofulosorum e eritema induratum de Bazin –, constituem uma das três formas de apresentação de tuberculides.

Neste contexto apresentamos o caso de uma mulher de 35 anos, natural da Guiné-Bissau e residente em Portugal há 20 anos, sem antecedentes pessoais relevantes e que foi encaminhada para a consulta de dermatologia por uma dermatose com um ano de evolução, com envolvimento preferencial da superfície extensora dos membros (Fig. 1). A doente negou sintomas sistémicos.

Após melhoria inicial e transitória com antibioterapia sistémica empírica, houve um recrudescimento das lesões dois meses depois. Foi pedido um estudo analítico geral, incluindo doenças infeciosas como a infeção pelo vírus da imunodeficiência humana, que não demonstrou alterações relevantes. Foram realizadas biópsias cutâneas para exame histopatológico, que revelou fundo de úlcera associada a reação granulomatosa, e para exame microbiológico (bacteriológico, micológico e micobacteriológico) com isolamento de *Streptococcus haemolyticus*. Foi instituída antibioterapia dirigida, mas sem sucesso. Por persistência das lesões foi pedido um novo estudo analítico, desta vez com doseamento de *interferon gamma release assay*, que foi positivo (8,33 UI/mL). Face aos achados clínicos, histológicos e analíticos foi colocada a hipótese diagnóstica de tuberculides papulonecróticas como manifestação indireta

Figura 1 – Pápulas, maioritariamente ulceradas, pústulas e cicatrizes localizadas preferencialmente na superfície extensora dos membros, e face posterior das coxas (A e B)

de tuberculose. A apoiar esta hipótese, destacamos a identificação de DNA de *M. tuberculosis* por PCR na amostra lesional colhida por biópsia cutânea.

Na sequência do estudo de foco primário extracutâneo, foi detetada uma adenopatia axilar direita, cujo exame histológico revelou linfadenite granulomatosa focalmente necrosante/abcedada. Os exames micobacteriológicos direto e cultural foram negativos, mas a pesquisa por PCR de DNA de *M. tuberculosis* foi positiva. Ainda que o estudo micobacteriológico de três amostras da expetoração tivesse sido negativo, a tomografia computorizada de tórax identificou densificações pulmonares no lobo superior direito. Assim, a doente foi diagnosticada com tuberculose ganglionar (com provável envolvimento pulmonar), iniciando terapêutica antibacilar durante seis meses. Face à resposta completa da dermatose quatro semanas após tratamento antibacilar, o diagnóstico de tuberculides papulonecróticas foi confirmado.

Tuberculides papulonecróticas ocorrem sobretudo em crianças e jovens adultos, caraterizando-se por pápulas ulceradas, por vezes com necrose central, e pústulas, distribuídas simetricamente pela superfície extensoras dos membros. Apesar de poder haver resolução temporária, cursa com múltiplas recorrências. O tratamento é realizado com antibacilares verificando-se resolução das lesões um a cinco meses após início de terapêutica.

Apresentamos assim um caso raro de tuberculides associada a tuberculose ganglionar, enfatizando-se a importância do reconhecimento destas reações de hipersensibilidade com expressão cutânea como manifestações indiretas de tuberculose.

CONTRIBUTO DOS AUTORES

JR: Captação de imagens, recolha dos dados clínicos, revisão da literatura, redação do manuscrito.

HL: Revisão da literatura, revisão crítica do manuscrito.

AR: Captação de imagens, redação e revisão crítica do manuscrito.

JA: Revisão crítica do manuscrito.

Todos os autores aprovaram a versão final a ser publicada.

PROTEÇÃO DE PESSOAS E ANIMAIS

Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial atualizada em outubro de 2024.

CONFIDENCIALIDADE DOS DADOS

Os autores declaram ter seguido os protocolos do seu centro de trabalho acerca da publicação de dados.

CONSENTIMENTO DO DOENTE

Obtido.

CONFLITOS DE INTERESSE

Os autores declaram não ter conflitos de interesse relacionados com o presente trabalho.

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José RAMOS✉[1], Hugo LEME[1], Ângela RODA[1], João ALVES[1]
1. Serviço de Dermatologia e Venereologia. Unidade Local de Saúde Almada-Seixal. Almada. Portugal.
✉ **Autor correspondente:** José Ramos. jalramos@campus.ul.pt
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Letter to the Editor: "Aphasia Screening Test (TeRAp): Construction and Validation for European Portuguese"

Carta ao Editor: "Teste de Rastreio de Afasia (TeRAp): Construção e Validação para o Português Europeu"

Keywords: Aphasia/diagnosis; Portugal; Psychometrics; Reproducibility of Results; Surveys and Questionnaires
Palavras-chave: Afasia/diagnóstico; Inquéritos e Questionários; Portugal; Psicometria; Reprodutibilidade dos Resultados

Dear Editor,

It was with particular interest that I read the article "Aphasia Screening Test (TeRAp): Construction and Validation for European Portuguese".[1] According to the Portuguese Institute of Aphasia, there are nearly 40 000 people affected with aphasia in Portugal and an estimate of 8000 new cases of aphasia every year.

Aphasia is a language disorder that may be acquired due to brain injury, stroke or other neurological conditions. According to Statistics Portugal, stroke remained the leading cause of death in 2022,[2] which should make us even more aware of the importance of early diagnosis and an accurate approach to aphasia.

As stated in the article from Fonseca *et al,*[1] the Aphasia Screening Test (TeRAp) was developed as a fast and easy-to-use tool for the screening of aphasia and better assessment of communication skills and language impairments of patients. The fact that the test is always available if the clinician has an internet connection is undoubtedly positive. As a family doctor who often deals with patients after stroke, with dysarthria or even mild cognitive impairment, it may be a challenge to decipher the needs of patients and to speak with people affected by communication disorders. Given this, not only is making a correct diagnosis mandatory, but also evaluating the ability of these patients to participate in decision-making about their own healthcare.

From the point of view mentioned in the article from Hinckley *et al,*[3] some clinicians tend to search for information about patients with aphasia from their partners or family members instead of talking directly to patients. It is important to provide person-centered care, personalized, that is in line with the individual's reality. Speech-language pathologists (SLPs) receive specialized training in communication, namely for people affected by communication disabilities, unlike medical doctors, whose initial education does not involve acquiring skills for approaching people with language disorders. Thus, SLPs have a key role in teaching other healthcare professionals (such as clinicians from primary and secondary care services) about successful communication techniques to recognize the evolution of patients' capacities throughout time and improve the quality of healthcare, thus mitigating dialogue barriers and paving the way for the reintegration of these people into society. Only adequate communication between clinicians and patients allows reasonable shared decision-making.

COMPETING INTERESTS

The author has declared that no competing interests exist.

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Cláudia MOURATO SILVA✉[1]
1. Unidade de Saúde Familiar Villa Longa. Unidade Local de Saúde do Estuário do Tejo. Vila Franca de Xira. Portugal.
✉ **Autor correspondente:** Cláudia Mourato Silva. claudiamouratosilva@gmail.com
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Cutaneous Metastasis in Advanced Gastric Cancer

Metástases Cutâneas no Carcinoma Gástrico Avançado

Keywords: Neoplasm Metastasis; Skin Neoplasms/secondary; Stomach Neoplasms
Palavras-chave: Metástase Neoplásica; Neoplasias do Estomago; Neoplasias da Pele/secundário

Cutaneous metastasis originating from gastric cancer is a rare manifestation, typically suggestive of advanced and aggressive disease.

We report the case of a male patient in his late 60s who was referred to our hospital with a facial lesion resembling erysipelas and multiple nodular lesions on the scalp (Fig. 1A). Concurrently, he reported upper abdominal and retrosternal pain, postprandial vomiting, anorexia, and an unintentional weight loss of 10 kg over the preceding three months. His medical history was significant for arterial hypertension, chronic alcohol consumption, and tobacco use.

Upper gastrointestinal endoscopy revealed a large, ulcerated lesion involving the entire stomach. Histopathological examination confirmed the presence of poorly differentiated adenocarcinoma with signet-ring cell morphology. Laboratory tests showed microcytic anemia secondary to iron deficiency, with normal inflammatory markers. An abdominal computed tomography demonstrated marked gastric wall thickening, celiac-mesenteric lymphadenopathy, and ascites. A biopsy of the scalp lesions confirmed secondary infiltration by adenocarcinoma, consistent with a primary gastric carcinoma (Fig. 1B).

The multidisciplinary tumor board recommended palliative care. The patient underwent endoscopic palliation with placement of a self-expandable metallic stent and systemic chemotherapy. Despite these interventions, the patient succumbed to the disease 10 weeks after diagnosis.

Cutaneous metastasis from gastric cancer, although infrequent, implies an advanced stage of malignancy and is associated with a poor prognosis. The incidence of cutaneous metastases from visceral carcinomas is reported to range from 0.7% to 9%, with the scalp being one of the more common sites of involvement.[1-3] Cutaneous metastasis, clinically resembling benign skin lesions, pose a diagnostic challenge for clinicians.

AUTHOR CONTRIBUTIONS

AS: Writing and critical review of the manuscript.
NM: Data collection, critical review of the manuscript.
EM, IS, MC: Critical review of the manuscript.
All authors approved the final version to be published.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in October 2024.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

PATIENT CONSENT

Obtained.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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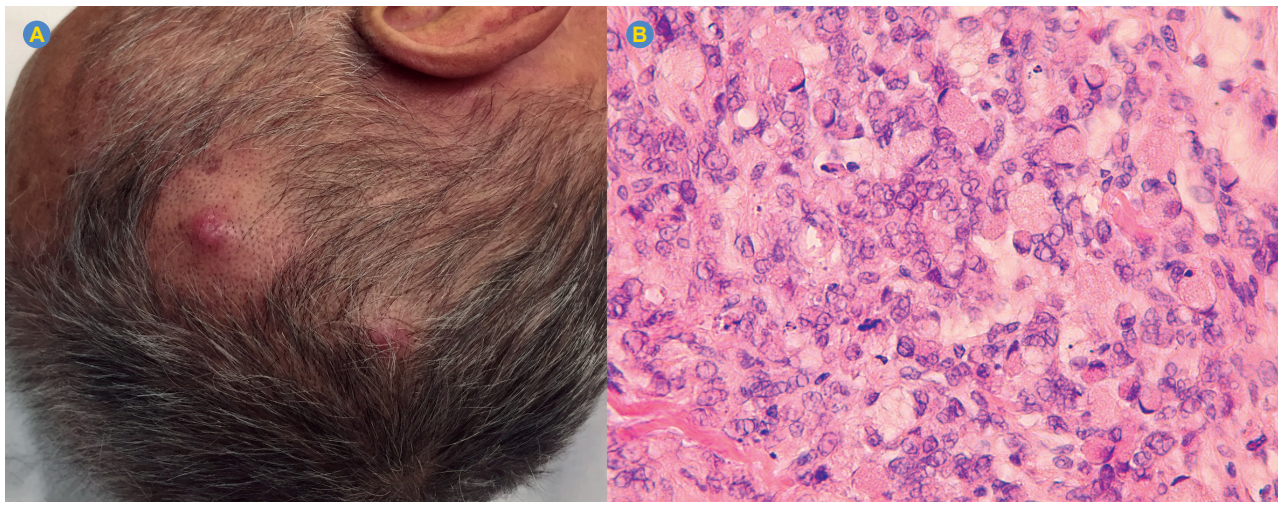

Figure 1 – Multiple nodular scalp lesions (A) and hematoxylin and eosin stain of the scalp lesion biopsy showing signet-ring cells infiltrating the skin (B)

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André SILVA✉[1], Nuno MONTEIRO[2], Estanislau MATEIA[1], Isa SANTOS[1], Margarida CORREIA[1]

1. General Surgery Department. Hospital de São Bernardo. Setúbal. Portugal.
2. General Surgery Department. Hospital Curry Cabral. Lisbon. Portugal.

✉ **Autor correspondente:** André Silva. andresilvafa@gmail.com

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Before a Diagnosis of Schizophreniform Disorder is Made, All Causes of Secondary Psychosis Should Be Ruled Out

O Diagnóstico de Perturbação Esquizofreniforme Só Deve Ser Feito após Exclusão de Todas as Causas de Psicose Secundária

Keywords: Psychotic Disorders/diagnosis; Schizophrenia
Palavras-chave: Esquizofrenia; Perturbações Psicóticas/diagnóstico

Dear Editor,

We were interested in the article by Teixeira da Cunha *et al* published in your journal, which deals with the analysis of a national database of schizophreniform disorders.[1] We support the authors' efforts, but have a few comments: it would have been very important to have data on the previous or current use of other drugs such as caffeine, alcohol, cocaine, amphetamines, heroin, etc. They can all promote, mimic or mask schizophrenia-like psychosis over weeks, months or even years. Although past drug use is an important influencing factor considered by the authors of the article, the genetic risk factors for schizophrenia (particularly in the nervous system regions that contribute to both psychosis and addiction) make patients vulnerable to drug use. This vulnerability may occur before the onset of psychotic symptoms, and increased substance use during adolescence may be associated with an increased risk for both the development of a substance use disorder and the onset of schizophrenia-like syndromes.[2]

Furthermore, no additional studies were mentioned. More than half (58.3%) of the patients included in the study were older than 30 years, which may be associated with an increased risk of organic psychosis. How many of these patients underwent brain imaging to rule out cerebral disease? How many had an electroencephalogram to rule out epilepsy? How many had a lumbar puncture to rule out encephalitis? Only patients with negative results should have been included in the cited study. We agree that schizophreniform disorder may precede a diagnosis of schizophrenia or schizoaffective psychosis, but this is only true if all organic causes of psychosis have been ruled out. No patient should be diagnosed with primary/idiopathic psychosis without a comprehensive investigation to rule out secondary/organic psychosis.[3] Exclusion of secondary schizophrenia is required, so remember the concept of pseudo-schizophrenia![4] And please never forget: schizophrenia is one of the most frequently imitated syndromes of medicine.[5]

AUTHOR CONTRIBUTIONS

JGM: Conceptualization, writing of the manuscript.
JF: Supervision, critical review of the manuscript.
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João GAMA MARQUES✉[1,2], Josef FINSTERER[3]
1. Treatment Resistant Schizophrenia Outpatient Clinic. Hospital Júlio de Matos. Unidade Local de Saúde São José. Centro Clínico Académico de Lisboa. Lisbon. Portugal.
2. University Clinic of Psychiatry And Medical Psychology. Faculdade de Medicina. Universidade de Lisboa. Centro Académico de Medicina de Lisboa. Lisbon. Portugal.
3. Neurology Department. Neurology & Neurophysiology Center. Vienna. Austria.
✉ **Autor correspondente:** João Gama Marques. joaogamamarques@gmail.com
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