Research Training Program in a Family and Community Medicine Residency in Argentina

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ABSTRACT

Introduction: Since 2011, we have implemented a research training program in the Family and Community Medicine Residency (FCMR) of a private university hospital, with two main components: the requirement to submit a final research project (FRP) to obtain the specialist degree, and a system of personalized tutoring.The objective of this study is to compare the number of original research articles published in peer-reviewed journals before and after the implementation of the program.

Materials and Methods: Retrospective cohort study. Through a self-administered questionnaire and a bibliographic search in PubMed, LILACS, and Google Scholar, we identified the number of former residents of the FCMR who led an original research project during their residency and succeeded in publishing it in a peer-reviewed journal, before and after the implementation of the program. We employed a segmented linear regression model to assess changes in temporal trends and calculate the crude and adjusted change in the probabilities of publication, controlling for potential confounding factors and imputing missing data.

Results: We included 115 graduates of the FCMR between 1993 and 2023. A total of 41 studies were published, of which 25 (61%) appeared in journals indexed in MEDLINE and 16 in other, less prominent databases. Regarding methodology, 30 (73.2%) studies employed a quantitative approach, mainly cross-sectional observational studies, questionnaire validation, or cohort studies; 9 (22%) were qualitative; and 2 (4.9%) used mixed methods. The training program was associated with a crude 3.39-fold increase (95% CI: 1.91 to 6.03) in the likelihood of publishing a paper in a peer-reviewed journal and in the number of publications per year.The level of involvement in research activities and the perceived support were high. Former residents highlighted the program's strengths, including its practical focus and personalized guidance, and suggested areas for improvement, such as expanding training in qualitative research.

Discussion and Conclusion: The implementation of the program was associated with a significant increase in the proportion of residents who lead original research and publish it in peer-reviewed journals.

Keywords: Graduate medical education, Professional education, Internship and residency, Research resources, Researchers, Research projects, Scientific communication and dissemination

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RESUMEN

Introducción: desde 2011 implementamos un Programa de Formación en Investigación en la Residencia de Medicina Familiar y Comunitaria (RMFyC) de un hospital privado universitario, con dos componentes principales: obligatoriedad de presentar un trabajo final de investigación (TFI) para obtener el título de especialista y un sistema de tutorías personalizadas.

El objetivo de este trabajo es comparar el número de investigaciones originales publicadas en revistas con revisión de pares, antes y después de la implementación del programa.

Materiales y métodos: estudio de cohorte retrospectiva. A través de un cuestionario autoadministrado y una búsqueda bibliográfica en PubMed, LILACS y Google Scholar, identificamos el número de exresidentes de la RMFyC que lideraron una investigación original durante su residencia y que lograron publicarla en una revista con arbitraje por pares, antes y después de la implementación del programa. Utilizamos un modelo de regresión lineal segmentada para evaluar cambios en las tendencias temporales y calculamos el cambio en las probabilidades de publicar, crudo y ajustado por potenciales factores confundidores, imputando datos faltantes.

Resultados: incluimos 115 residentes egresados de la RMFyC entre 1993 y 2023. Se publicaron 41 estudios, de los cuales 25 (61%) están en revistas indizadas en MEDLINE y 16 en otras bases de menor alcance. En cuanto a la metodología, 30 (73,2%) emplearon un enfoque cuantitativo, predominantemente estudios observacionales de corte transversal, validación de cuestionarios o cohortes; 9 (22%) fueron cualitativos y 2 (4,9%) mixtos. El programa de formación estuvo asociado con un aumento crudo de la probabilidad de publicar un trabajo en una revista con revisión de pares de 3,39 veces (IC 95% de 1,91 a 6,03) y con un aumento en el número de publicaciones anuales. El grado de involucramiento en actividades de investigación y el grado de apoyo percibido fueron altos. Los exresidentes señalaron fortalezas del programa, entre ellas el enfoque práctico y el acompañamiento personalizado, y puntos de mejora, entre las cuales se cuenta profundizar la formación en investigación cualitativa.

Discusión y conclusión: la implementación del programa estuvo asociada con un aumento significativo de la proporción de residentes que lideran investigaciones originales y logran publicarlas en revistas con arbitraje de pares.

Palabras clave: educación de posgrado en medicina, educación profesional, internado y residencia, recursos para la investigación, investigadores, proyectos de investigación, comunicación y divulgación científica.

INTRODUCTION

Various educational institutions around the world have highlighted the importance of developing competencies in clinical research, critical reading, and biostatistics during medical residency[1].

According to Potti et al., directors of different residency programs considered that the educational objectives in research training, in decreasing order of importance, should include: 1) becoming a critical consumer of published research, 2) learning research skills, 3) completing a research project, and 4) producing publications and presentations that contribute new knowledge[2].

The potential benefits of research training are numerous[3,4] and could lead to better clinical care by fostering critical appraisal skills, clinical reasoning, and lifelong learning[5,6].

However, various barriers to achieving these objectives have been described. The most frequently cited are a lack of knowledge about institutional research programs, a lack of confidence in academic writing skills, a limited understanding of the value of research, a lack of financial support, a lack of availability of faculty mentors, and, most importantly, a lack of protected time to carry out these activities[2,6-10].

Since its creation in 1990, the Family and Community Medicine Residency (RMFyC) at our institution has incorporated training in research-related skills, including critical appraisal of evidence, through mechanisms such as the bibliographic seminar –an educational activity lasting one hour and held biweekly– during which a resident presents a recently published original study of interest to primary care practitioners, focusing on some of its methodological aspects. Additionally, the acquisition of scientific writing skills was encouraged, for example, through the publication of summary and commentary articles in the journal *Evidencia*, many of which were previously presented in bibliographic seminars, and "patient-centered evidence" articles, in which the resident conducts a literature search and analysis to answer a

question arising from a clinical case. However, resident participation in the production of original research was limited and erratic during the early years, which led the Family and Community Medicine Service (F&CMS) to implement a series of interventions aimed at improving resident research training and increasing the production of original research aligned with institutional areas of interest.

The objective of this study is to describe the historical evolution of the Research Training Program of this residency between 2008 and 2024 and to explore its potential influence on the production of original research led by F&CMS residents and its publication in peer-reviewed journals, as well as on the perception of those who completed this training program.

MATERIALS AND METHODS

Design

Retrospective cohort study.

Program Description

The Research Training Program implemented at the F&CMS, gradually incorporated multiple components starting in 2008, the year in which it was decided to include research-specific content in the residency curriculum. This included writing a research protocol during the third year of residency and carrying out the study during the fourth year. This decision had little impact on practice, which is why, in 2010, it was established that residents must have completed their research project by the time of graduation in order to obtain their specialist degree. Delivery of the degree was withheld from those who had not finalized the manuscript of their research. In 2011, a system of mentorship and incentives for presenting research at national and international conferences, funded by F&CMS, as well as for publishing in journals with article processing fees, was established.

The implementation of mentorship required creating a structure with a budget allocation for fees to cover ten weekly hours of a professional with accredited experience in research and university teaching. Through a non-formal educational model inspired by the paradigm of work-based learning within a community of practice[11–13], an open-door research office policy was adopted, inviting residents to consult on questions and specific problems without scheduling an appointment. When resolving these queries required deeper educational intervention, supporting literature was provided, and a formal meeting was scheduled to address the issue. During the first year of implementing this strategy, we observed that residents began to recognize that, as in other areas of their training, they had access to a faculty member who was available and willing to address their concerns. Residents even began requesting that their elective rotation month be carried out in the F&CMS Research Area.

Gradually, the Research Area expanded the mentorship team with professionals who had completed their residency during this period and continued with postgraduate studies in research (master's degrees in research or clinical effectiveness), and incorporated family physicians with experience in various research topics (qualitative research, questionnaire development) who did not have a formal mentorship role in the residency. Simultaneously, additional measures were implemented, including a formal research course during the second year of residency starting in 2013; a mandatory rotation in the Research Area during the third year starting in 2014; the pursuit of external funding through hospital and government research grants; the establishment of institutional research lines in 2016; and the creation of a research fellowship in 2019.

Although the described program includes several components, we consider that the most influential aspects were the requirement to complete the research project to obtain the specialist degree and the establishment of the mentorship system, which provides personalized guidance through the different stages—from defining the research problem, formulating the question and methodological design, submitting to the Ethics Committee, analyzing and presenting results in various formats, to publishing the final report in scientific journals.

Participants, Information Sources, and Outcome Variables

For the objective evaluation of the program's impact, the study target population included all professionals who graduated from the FCMR between 1993 and 2022. The primary outcome was the proportion of former residents who published a final research project (FRP) led by themselves during residency in a peer-reviewed journal. To identify the studies published by these professionals, we conducted a search in three major biomedical literature databases: PubMed, LILACS, and Google Scholar. We included publications that, according to the F&CMS Research Area team or the researchers' reports (via a self-administered questionnaire, see below), corresponded to original research carried out during residency. Although original research conducted before 2008 was not considered a final research project (FRP) since it had not yet been incorporated into the curriculum, for simplicity, we use this abbreviation for all original research projects led by a resident and conducted during residency.

For the subjective evaluation of the program's impact, individuals who are currently or were previously part of the F&CMS Research Area were excluded from the sample. Information was collected through an ad hoc self-administered questionnaire shared via Google Forms® and presented in Appendix 1. The data collected included participants' personal characteristics before entering residency (age, self-perceived proficiency in English), expectations at the start of residency regarding involvement in research activities, and prior research experience. Additionally, we enquired about their self-perceived level of participation in research activities during residency and whether they completed the various stages related to planning and carrying out the FRP during

that period of training. We also investigated the degree of support they perceived from the F&CMS and/or the Research Area tutors, using a five-point Likert scale. Finally, through two open-ended questions, we asked participants to indicate the research-related skills they believed they had acquired during residency and invited them to provide suggestions for improving the program.

Statistical Analysis

For descriptive statistics of continuous variables, we used the mean and standard deviation or the median and interquartile range (IQR), depending on their distribution, and absolute and relative frequencies for categorical variables.

We evaluated the main outcomes before and after 2011, the year in which the most important aspects of the program were implemented. In this way, individuals who began residency in 2007 and completed it in 2011 were the first to receive the intervention under study. To compare outcomes before and after that year, we used Fisher's exact test for categorical variables and the Wilcoxon test for continuous variables. In addition, we calculated the strength of the association between participation in the training program and publication of the FRP using relative risk (RR) and odds ratio (OR), along with their 95% confidence intervals (95% CI).

To adjust this association for other variables that could act as confounders (English proficiency, expectations, and prior research experience), we followed these steps: first, we used a multiple imputation model by chained equations to impute missing values for these covariates[14]. Each value was imputed 50 times (corresponding to the percentage of missing data in the sample) to obtain 50 complete datasets. These datasets were then used to fit 50 logistic regression models, which were combined into a final model[14]. Finally, we calculated the "E-value" for the adjusted OR provided by this model to estimate the minimum strength of causal association that an unmeasured confounder would need with both program participation and FRP publication to fully and alternatively explain the observed association between these variables[15].

The primary outcome was considered achieved if the resident had published their FRP in a peer-reviewed journal before the administrative censoring date of the cohort (December 2024), regardless of the time elapsed since residency completion. As a secondary outcome, we evaluated the time between residency completion and FRP publication and considered an FRP to be published in a timely manner if it was published up to two years after residency completion.

We graphically analyzed the cumulative incidence of published FRPs over time to identify the temporal points at which the annual publication rate changed and applied a segmented linear regression model to confirm these inflection points and calculate the slope for each period, along with its 95% CI. All statistical analyses were conducted using R16, employing the "segmented," "tidyverse," "epiR," and "mice" packages.

Finally, we performed a content analysis of the open-ended responses to identify meaning units and organize them into a final narrative report.

Ethical Considerations

This research was approved by the University Research Protocol Ethics Committee of the institution under number 0020-21. Participation was voluntary, and the information obtained was treated confidentially. Participants provided informed consent as part of the questionnaire.

RESULTS

A total of 115 individuals completed the FCMR program between 1990 and 2022, of whom 54 (47%) completed residency after 2011, i.e., received the intervention, and 61 (53%) completed residency before 2011. Among the former residents, 72.2% continue working at the institution.

During this period, 41 articles corresponding to FRPs were published, four of them co-led by two residents. Of these, 25 (61%) were in journals indexed in MEDLINE/PubMed, while 16 (39%) appeared in other, less widely indexed databases. Forty (97.6%) are available as full text without restrictions; 38 (92.7%) in open-access journals and 2 (4.9%) via PubMed Central. Regarding methodology, 30 studies (73.2%) used a quantitative approach, predominantly cross-sectional observational studies, questionnaire validation, or cohorts; 9 (22%) were qualitative, and 2 (4.9%) mixed methods. Eighty percent of the publications were produced after 2015. The complete list of these articles is presented in Appendix 2.

Among the residents who received the intervention, 33 (61.1%) carried out an FRP that was published in a peer-reviewed journal, whereas among those who did not receive the intervention, 11 individuals (18%) achieved this goal. In relative terms, program implementation was associated with a 3.39-fold increase (95% CI: 1.91-6.03) in the likelihood of leading an original research project during residency that was subsequently published (unadjusted RR). The crude and adjusted ORs were 7.14 (95% CI: 3.05-16.74) and 6.84 (95% CI: 2.56-18.25), respectively, while the E-value was 4.67 for the point estimate and 2.58 for the lower limit of the 95% CI.

The median time between residency completion and publication was 2 years (IQR 2-4). There were no statistically significant differences before or after the intervention. Among residents who received the intervention, 20 (37.03%) managed to publish their FRP in a timely manner, whereas among those who did not receive it, only 3 (4.92%) achieved this goal.

Figure 1 shows the cumulative incidence of FRPs published over time, and Figure 2 shows the proportion of former residents who published their FRP by year of graduation.

We identified two inflection points in the slope of the cumulative incidence: 2015 and 2020. The calculated slopes for 1990-2015, 2015-2020, and 2020-2024 were 0.35 (95% CI: 0.30-0.39), 4.11 (95% CI: 3.71-4.50), and

2.25 (95% CI: 1.52-2.98) publications per year, which corresponds to one FRP every three years, every three months, or every six months, respectively.

In Appendix 1, Figures 1 and 2 show the incidence of FRPs published in a timely manner, cumulatively and by year, respectively. Considering only studies published on time, we identified two change points corresponding to 2004 and 2015.

Results from the Self-Administered Questionnaire

Of the 115 individuals who completed residency between 1993 and 2021, nine (7.8%) were excluded due to their affiliation with the Research Area. It was not possible to send the questionnaire to three individuals (2.6%) due to a lack of updated contact information, and two (1.7%) had passed away prior to the study.

The questionnaire was sent to 101 individuals, and 50 responses (51.6%) were obtained after three email invitations and personal contact. The response rate was higher among former residents still working at the institution compared to those who had moved to other settings (56.6% vs. 25%, $p < 0.01$), with no differences between those who received or did not receive the intervention (53.7% vs. 42.6%, $p = 0.26$) or between those who had published their FRP and those who had not (54.5% vs. 43.7%, $p = 0.34$).

Table 1 presents the characteristics of the participants, and Table 2 shows the main results of the questionnaire. The perceived level of support was high both before and after the intervention (median 5 points; IQR 4–5; $p = 0.52$). Some participants reported not having acquired research-related skills during residency, particularly before the intervention. However, most mentioned having developed skills in critical appraisal of scientific evidence and research conduct, mainly after the intervention: *"I acquired more skills in critical appraisal than in execution"* (former resident, did not receive the intervention); *"I learned database management; I learned how to write a protocol (...), the competencies necessary to carry out a project, and the need to work in a team"* (former residents, received the intervention).

The majority considered that research training has improved in recent years, highlighting program aspects such as protected time, individualized follow-up, and practical focus: *"Training has improved tremendously compared to my experience, in which support from the research team at the time was almost nonexistent"* (former resident, did not receive the intervention); *"The program is very good because you learn by doing, time is protected, and follow-up is individualized"* (former residents, received the intervention). Among the areas for improvement, qualitative research training was noted: *"The weakest part of my research training (...) was not having proper guidance in the application of theoretical frameworks and qualitative methodologies"* (former resident, received the intervention).

DISCUSSION

The results of this study show that the proportion of residents who participated in an original research project during residency and successfully published it in a peer-reviewed journal increased following the implementation of the program. Additionally, participants perceived an improvement in research training in recent years and evaluated it positively.

This increase was independent of the assessed confounding factors, such as greater English proficiency

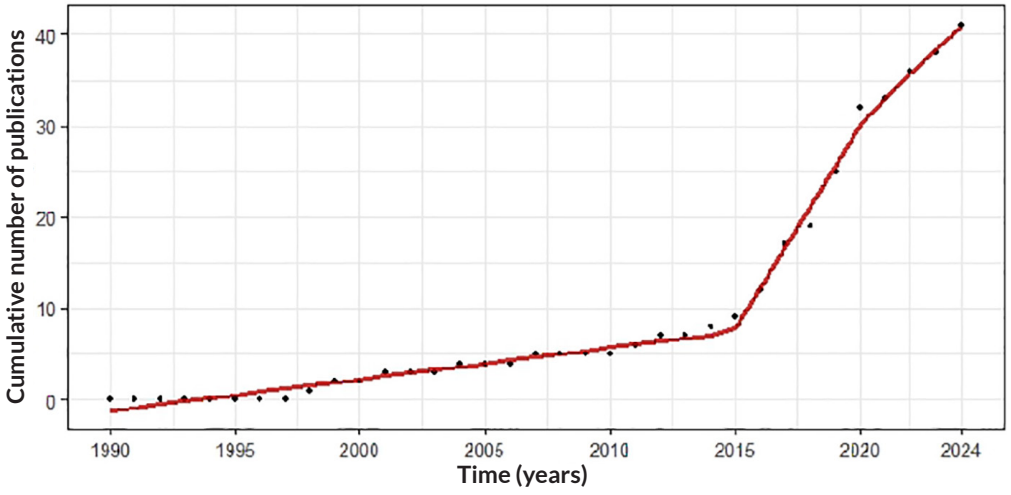

Figure 1. Cumulative incidence of final research projects published by former residents of the Family and Community Medicine residency program at our institution over time. The dots represent the cumulative number of FRPs (Final Research Projects) published each year, and the red line indicates the average value predicted by the segmented linear regression model. The model considers two inflection points at which the slope of the curve changes, approximately corresponding to the years 2015 and 2020.

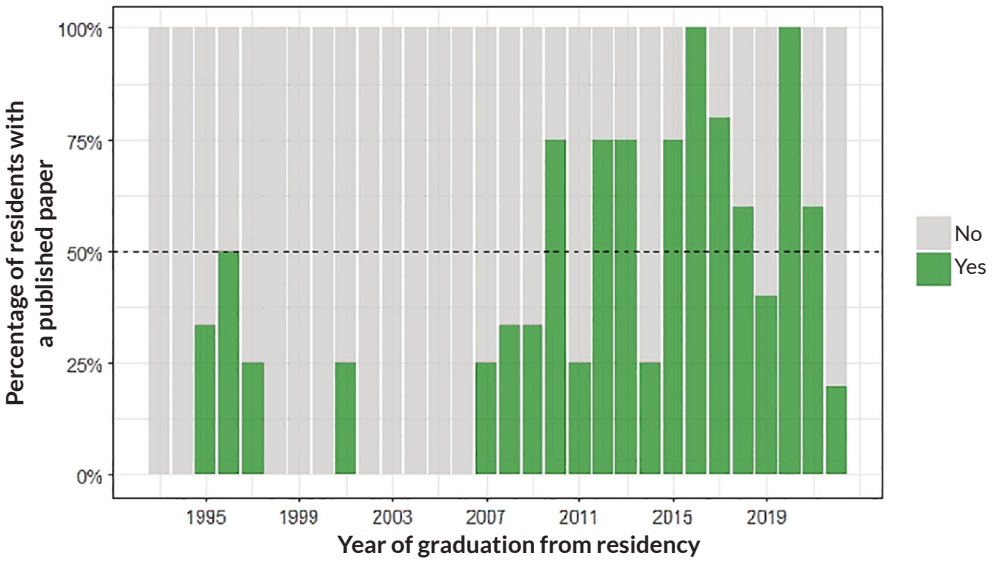

Figure 2. Proportion of former residents of the Family and Community Medicine residency program at our institution who published a final research project, according to year of residency completion.

Table 1. Characteristics of participants who responded to the self-administered questionnaire, according to the period in which they completed their residency (before or after program implementation)

Characteristics (N = 23)	Before the Intervention (N = 27)	After the Intervention	p value
Age at the start of residency: median (intercuartile range)	26 (25 a 27)	26 (25 a 27)	0.71
Expectations regarding research: median (interquartile range)	2 (1.5 a 3)	3 (2.5 a 4)	0.04
Previous research experience: absolute frequency (%)	5 (21.7%)	7 (25.9%)	1
English proficiency: median (interquartile range)	4 (2 a 5)	5 (5 a 6)	0.001

and higher expectations of participating in research activities. Moreover, the E-value of 4.67 indicates that it is unlikely that this association can be fully explained by unmeasured confounders, suggesting that most of the observed increase can be attributed to the effectiveness of the program.

Figure 1 shows that the number of published projects increased starting in 2015, i.e., five years after the program began. This delay may be partly due to a latency effect from the initial components of the intervention and the subsequent incorporation of additional elements, such as the research course and the mandatory rotation through the Research Area.

Even with the positive outcomes of the program, there are opportunities for further improvement. Although nearly all residents were involved in a research project during residency after the program's implementation, the proportion of projects published in peer-reviewed journals remains far from 100% per year. Additionally, the annual publication rate decreased after 2020. This may be explained by several factors, including the characteristics of each resident cohort and the active tutor group at

Tabla 2. Resultados principales del cuestionario autoadministrado

	Antes de la intervención (N = 23)	Después de la intervención (N = 27)	Riesgo relativo (IC 95%)	Valor de p
Leadership of a final research project during residency: absolute frequency (%)[a]	9 (39.1%)	25 (92.3%)	2.,37 (1.41 a 3.98)	< 0.001
Application for research grants: absolute frequency (%)[a]	1 (4.35%)	12 (48.15%)	11.07 (1.57 a 78.34)	0.05
Obtaining research grants: absolute frequency (%)[a]	1 (4.35%)	6 (22.2%)	5.11 (0.66 a 39.41)	< 0.001
Presentation of the project at national conferences: absolute frequency (%)[a]	5 (21.74%)	17 (62.96%)	2.90 (1.27 a 6.63)	0.003
Presentation of the project at international conferences: absolute frequency (%)[a]	3 (13.04%)	12 (44.4%)	3.41 (1.09 a 10.62)	0.016
Degree of involvement in research activities during residency: median (interquartile range)	3 (2 a 3.5)	4 (4 a 5)	-	< 0.001
Perceived level of support: median (interquartile range)	5 (4 a 5)	5 (4 a 5)	-	0,52

[a]Percentage calculated over the total number of participants who completed the survey

each point in time, as well as the higher number of FRPs published late during the 2015-2020 period, as shown in Figures 1 and 2 of the Appendix. Finally, responses from the questionnaire indicate a need to strengthen training in qualitative research. It is worth noting that in recent years we observed a trend toward increased production of qualitative studies that have not yet been published.

Our findings are comparable to those of other authors, who report that research training programs during residency –including structured classes, personalized mentorship, elective research rotations, and academic activities such as journal clubs, manuscript writing, and forums– are positively perceived by residents, promote the acquisition of skills for critical appraisal of scientific evidence and conducting research projects, and increase the number of original publications[3-6,9,17-21]. Mandatory participation, one of the fundamental components of our program, ensures that residents engage in research projects. It is important that this requirement be transparent to residents—that is, clearly stated in the residency program and supported by faculty guidance in planning and executing projects. Mentorship, another key component, presents challenges such as sustainability but has demonstrated a positive impact in this and other contexts[4,5,21,22].

A limitation of our study is the low response rate, which could introduce selection bias, as respondents may have had a greater interest in research activities or a better experience overall. Furthermore, responses may be affected by courtesy bias due to interpersonal relationships between former residents and members of the Research Area, as well as the fact that 72.6% of former residents continue working at the F&CMS.

A strength of the study was the incorporation of additional data sources, such as searches in PubMed, LILACS, and Google Scholar, which allowed us to

complement questionnaire responses and obtain an objective indicator of the intervention's outcomes.

CONCLUSION

Our study shows that the implementation of the Research Training Program was associated with a significant increase in Family Medicine residents' participation in original research projects during residency and in the number of publications in peer-reviewed journals, while also highlighting the importance of sustaining such interventions in the future.

Author Contributions: Research, project administration, formal analysis, visualization, writing – original draft (SASS); Writing – review & editing (SASS, SAT); Conceptualization (CC, VV, FEP, CV, SAT); Investigation, project administration, writing – original draft, writing – review & editing (CC, VV); Methodology, supervision, investigation (SAT).

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APPENDIX 1
Questionnaire used to assess the impact of the intervention

Title
Research Training during Family and Community Medicine Residency

Invitation:
Hello!
We are conducting a study on the perception of research skill development among graduates of the Family and Community Medicine residency program. We invite you to complete this survey (it will take approximately ten minutes). Thank you very much for your collaboration.
Sincerely,
Research Area, Family and Community Medicine Service

Questionnaire Items:
- **Email address**
- **Informed consent**
  Below is a summarized version of the information sheet and consent form. The full version of the information sheet can be found as an attached file at this link.

  Information Sheet for Informed Consent (Summary)
  This research protocol, entitled *Historical Evolution of Original Research Produced by Family and Community Medicine Residents at a University Hospital*, is led by members of the Research Area of the Family and Community Medicine Service (F&CMS).

  The study aims to review the Research Training Program for F&CMS residents and assess graduates' perceptions of the research skills they acquired. Participation in the study involves completing an online survey and is open to physicians who were part of the F&CMS residency program at our institution.

  Participation is voluntary, with no identified risks, and the information collected will be analyzed confidentially. Although there are no direct benefits, participants' contributions will help improve the residency training program. Results will be shared in academic journals and conferences, and information will be provided to interested participants.

  The protocol was approved by the University Research Protocols Ethics Committee (CEPIU) of the Hospital Italiano de Buenos Aires. The full informed consent form provides contact information for questions and details of the Ethics Committee.

  Consent Form
  I have read the information provided. I have had the opportunity to ask questions, and all of my questions have been answered satisfactorily. I voluntarily consent to participate in this research as a participant and understand that I have the right to withdraw at any time without affecting my relationship with the F&CMS f our institution in any way.

  Select one option: Yes, I agree to participate | No, I prefer not to participate

- **Personal Information:** *Full name | Date of birth | Year you started residency (four digits)*

- **Research Experience:**
  – Had you participated in any research BEFORE starting residency? *Yes / No*
  – Regarding the research you participated in BEFORE starting residency, was it eventually published? *Yes / No*
  – BEFORE starting your residency, what were your expectations regarding research experiences you might be involved in DURING residency? *1 to 5*

  - BEFORE starting your residency, what was your English language proficiency?
    - Did not understand English | Could read | Could read and write | Could read, write, and understand spoken English | Could read, write, understand, and converse in English with some difficulty | Could read, write, understand, and converse fluently in English
  - How much do you think you were actually involved in research experiences during your residency? 1 to *5*
  - Did you write a research protocol during residency? Yes / No
  - If you wrote a research protocol during residency: was it approved by an Ethics Committee? Yes / No
  - Did you carry out at least one research project as principal investigator during your residency? Yes / No
  -

- **Execution of the Research Project**
  - What level of support (research mentorship) did you receive from the Family and Community Medicine Service to carry out your original research project? *0 to 5*
  - Was the research project eventually published? *Yes / No*
  - Was it published in a journal indexed in *MEDLINE or LILACS? Yes – MEDLINE | Yes – LILACS | No – Neither | I don't know*
  - Year of publication (four digits)
  - Please provide the link to the publication or the full article citation:
  - Was the project presented at a conference? One or two options may apply. *Yes – International conference | Yes – National conference | No*
  - Was the project submitted to request at least one grant or scholarship? *Yes / No*
  - Was any grant or scholarship obtained for the project? *Yes / No*
  - Do you consider that you acquired research skills during residency? Please describe them briefly below:
  - We appreciate your participation and invite you to write any comments that could help us improve our research training program.

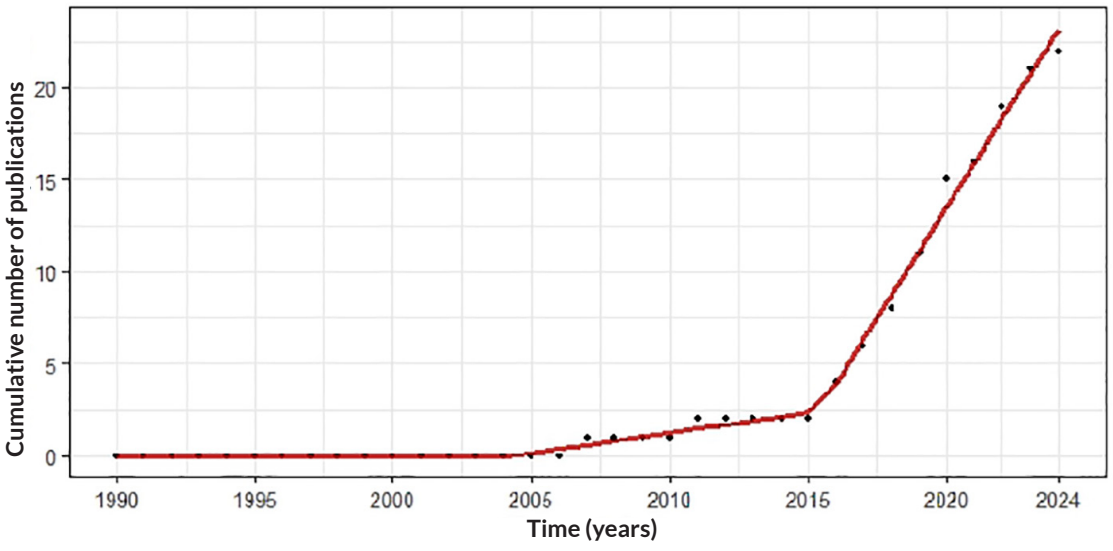

Figure 1 (Appendix). Cumulative incidence of final research projects published by former residents of the Family and Community Medicine residency program at our institution over time, including only projects published in a timely manner (i.e., within two years after residency completion). The points represent the cumulative number of projects published each year, and the red line represents the predicted average value from the segmented linear regression model. The model considers two cut points where the slope of the curve changes, approximately corresponding to the years 2005 and 2015.

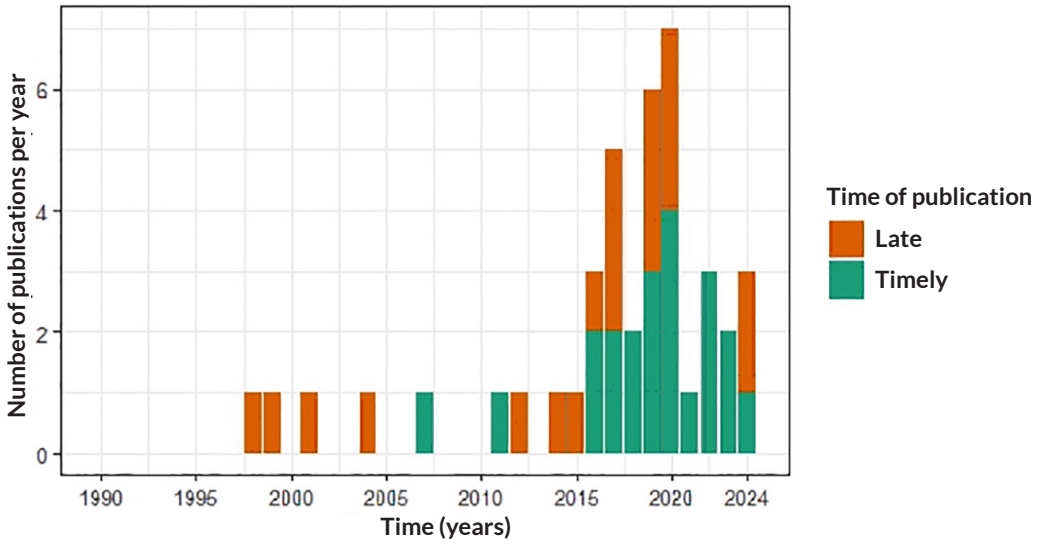

Figure 2 (Appendix). Number of studies published per year by former residents of the Family and Community Medicine residency program at our institution, either in a timely manner (i.e., within two years after residency completion) or late, over time.

APPENDIX 2

List of publications derived from final research projects led by former residents of the Family and Community Medicine residency program at the institution[1]

1. Augustovski FA, Cantor SB, Thach CT, et al. Aspirin for primary prevention of cardiovascular events. J Gen Intern Med. 1998;13(12):824-835. https://doi.org/10.1046/j.1525-1497.1998.00246.x. PMID: 9844080.
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3. Carrete P, Augustovski F, Gimpel N, et al. Validation of a Telephone-administered Geriatric Depression Scale in a hispanic elderly population. J Gen Intern Med. 2001;16(7):446-450. https://doi.org/10.1046/j.1525-1497.2001.016007446.x. PMID: 11520381.
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5. Basualdo N, Giraudo N, Discacciati V, et al. ¿Por qué cuesta usar el condón?: opiniones, creencias y conocimientos sobre el uso del preservativo en adultos de un suburbio de Buenos Aires. Arch Med Fam Gen. 2007;4(2).
6. Carrara C, Mutchinik M, Rezzónico M, et al. Factores asociados al autorreporte de rastreo de cáncer de mama y cuello uterino en mujeres atendidas en un Centro de Salud del Bajo Boulogne, San Isidro, Buenos Aires, Argentina: estudio de corte transversal. Arch Med Fam Gen. 2011;8(1).
7. Weisbrot M. Conceptos y percepciones de las abuelas sobre el cuidado de sus nietos: estudio cualitativo en una población del Hospital Italiano de Buenos Aires. Arch Argent Pediatr. 2012;110(2):126-131. https://doi.org/10.5546/aap.2012.126. PMID: 22451285.
8. Verna M, Kopitowski K, Vietto V, et al. Conocimiento de médicos de un Hospital Universitario de Buenos Aires respecto de las recomendaciones de vigilancia colonoscópica luego del hallazgo de un pólipo colónico: estudio de corte transversal. Arch Med Fam Gen. 2014;11(1).
9. Luciani L, Guenzelovich T. Implementación de una iniciativa para promover un entorno laboral saludable en un Servicio de Medicina Familiar de un Hospital Universitario: investigación-acción participativa. Rev Hosp Ital B.Aires. 2015;35(4):118-123.
10. Salgado MV, Kopitowski K, Barani M, et al. Sobreuso de mamografía para rastreo en un hospital académico de Buenos Aires. Rev Argent Salud Pública. 2016;7(27):7-11.
11. Ganiele MLN, Terrasa SA, Kopitowski KS. Excesivo rastreo de osteoporosis en mujeres menores de 65 años: estudio de corte transversal. Salud Colect. 2016;12(3):443-452. https://doi.org/10.18294/sc.2016.841. PMID: 28414853.
12. Esteban S, Vázquez Peña F, Terrasa S. Translation and cross-cultural adaptation of a standardized international questionnaire on use of alternative and complementary medicine (I-CAM - Q) for Argentina. BMC Complement Altern Med. 2016;16:109. https://doi.org/10.1186/s12906-016-1074-4.PMID: 27029211.
13. Vietto V, Belardinelli S, Rubinstein F, et al. Cascada diagnóstica consecutiva al rastreo de cáncer colorrectal con sangre oculta en materia fecal: estudio de cohorte retrospectiva. Arch Med Fam Gen. 2017;14(1):6-11.
14. Sigal T, Durante E. Competencia diagnóstica de los médicos de atención primaria con distintas técnicas de visualización de radiografías. Educ Méd. 2017;18(4):262-266. https://doi.org/10.1016/j.edumed.2016.11.002.
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16. Franco JVA, Terrasa SA, Kopitowski KS. Medication discrepancies and potentially inadequate prescriptions in elderly adults with polypharmacy in ambulatory care. J Fam Med Prim Care. 2017;6(1):78-82. https://doi.org/10.4103/2249-4863.214962. PMID: 29026754.
17. Esteban S, Rodríguez Tablado M, Peper FE, et al. Development and validation of various phenotyping algorithms for diabetes mellitus using data from electronic health records. Comput Methods Programs Biomed. 2017;152:53-70. https://doi.org/10.1016/j.cmpb.2017.09.009. PMID: 29054261.

18. Riganti P, Discacciati V, Terrasa S, et al. Factores motivacionales que influyen sobre las mujeres en la realización de mamografías de tamizaje de cáncer de mama. Rev Argent Salud Pública. 2018;9(37):22-28.
19. Peper FE, Esteban S, Terrasa SA. Evaluación de la adherencia primaria a medicamentos en pacientes con enfermedades crónicas afiliados al Seguro de Salud del Hospital Italiano de Buenos Aires: estudio de cohorte retrospectiva. Aten Primaria. 2018;50(2):96-105. https://doi.org/10.1016/j.aprim.2017.01.013. PMID: 28521859; PMCID: PMC6837084.
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21. Martinez CA, Vietto V, Terrasa SA, et al. Tendencia temporal de realización de antígeno prostático específico en un hospital académico de Buenos Aires. Rev Fac Cien Med Univ Nac Córdoba. 2019;76(4):238-241. https://doi.org/10.31053/1853.0605.v76.n4.25185. PMID: 31833748.
22. Drimer C, Terrasa S, Mutchinick M. Dispositivo estructurado de intervenciones psicosociales en atención primaria: serie de casos retrospectiva. Evid Actual en Práct Ambul. 2019;22(2):e002014-e002014. https://doi.org/10.51987/evidencia.v22i2.4237.
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24. Ruiz Yanzi MV, Barani MS, Franco JVA, et al. Translation, transcultural adaptation, and validation of two questionnaires on shared decision making. Health Expect Int J Public Particip Health Care Health Policy. 2019;22(2):193-200. https://doi.org/10.1111/hex.12842. PMID: 30334315.
25. Nusfaumer M, Terrasa S. Expectativas de los pacientes respecto de la consulta con un médico de familia: estudio de corte transversal. Evid Actual En Práct Ambul. 2019;22(4):e002027-e002027. https://doi.org/10.51987/evidencia.v22i4.4266.
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27. Granero M, Perman G, Vazquez Peña F, et al. Validación de la versión en español de la Escala de Red Social Lubben-6. Rev Fac Cien Med Univ Nac Córdoba. 2020;77(4):296-300. https://doi.org/10.31053/1853.0605.v77.n4.28775. PMID: 33351375.
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31. Fraguas ML, Vietto MV, Arceo MD, et al. Adaptación y validación de la versión argentina de un instrumento para evaluar actividades de desarrollo profesional continuo. Arch Argent Pediatr. 2020;118(2):125-129. https://doi.org/10.5546/aap.2020.eng.125. PMID: 32199047.
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41. Vega A, Discacciati V, Volpi M, et al . Análisis cualitativo de la interrupción voluntaria del embarazo en el Hospital Italiano de Buenos Aires. Medicina (B Aires). 2024;84(6):1089-1100. PMID: 39666401.