


Performance of postgraduate training in collective health and SUS development: Is there a relationship?

Desempenho da pós-graduação em saúde coletiva e desenvolvimento do SUS: existe relação?

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Abstract

This essay asks whether and to what extent the *stricto sensu* postgraduate programs in public health contribute to the development of the Brazilian National Health System (SUS). The hypothesis is positive, although an obvious and spontaneous movement is not stated, since scientific evidence is never mechanically adopted; implementation is a political act of management and not a result of academic studies. The argument is that these programs balance between two commitments: they obey the educational logic of the highest level of higher education and the development of science and technology, but they aim at knowledge and qualification of the health sector. The bases that support this text are articles and reports that deal with the significance of science, technology and innovation for world and national development; articles dealing with the job market of postgraduate students; and testimonies of 16 program coordinators whose relevance is highlighted in the analysis of the work. It is concluded that there is an effect, sometimes diffuse, sometimes concrete, of postgraduate courses on the performance of SUS and other national institutions. The contributions of doctoral, academic master's and professional master's programs differ, each in its own way is fundamental for the qualification of SUS.

Keywords: Graduate training; Collective Health; SUS; Science & Technology.

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Resumo

Este ensaio questiona se e até que ponto os programas de pós-graduação *stricto sensu* em saúde coletiva contribuem para o desenvolvimento do Sistema Único de Saúde (SUS). A hipótese é positiva, ainda que não se afirme um movimento óbvio e espontâneo, pois evidências científicas nunca são mecanicamente adotadas; a implementação é um ato político de gestão e não uma decorrência de estudos acadêmicos. O argumento é que esses programas se equilibram entre dois compromissos: obedecem à lógica educacional do mais alto nível do ensino superior e ao desenvolvimento da ciência e tecnologia, mas objetivam conhecimento e qualificação do setor saúde. As bases que fundamentam este texto são artigos e relatórios que tratam da significância da ciência, tecnologia e inovação para o desenvolvimento mundial e nacional; artigos que tratam do mercado de trabalho dos ex-alunos da pós-graduação; e depoimentos de 16 coordenadores de programas cuja relevância está assinalada na análise do trabalho. Conclui-se que há um efeito, por vezes difuso, por vezes concreto, dos cursos de pós-graduação no desempenho do SUS e de outras instituições nacionais. Diferenciam-se as contribuições dos doutorados, dos mestrados acadêmicos e dos mestrados profissionais, cada um a seu modo é fundamental para a qualificação do SUS.

Palavras-chave: Pós-Graduação; Saúde Coletiva; SUS; Ciência & Tecnologia.

Introduction

Some studies carried out in nations with a high degree of social and economic development are concerned with the quality of postgraduate courses (Morrison et al., 2011) and trends in student career choice (Brass et al., 2010; Gemme; Gingras, 2012; Kemp; Newnham; Chapman., 2012), which has, in part, been followed by Brazil. The rationale is that, by reaching this level of education, people develop a high probability of contributing to the country's economic, cultural and scientific progress. Pan and An (2021) analyzed the regions of the world where studies that seek to understand the influence of science and technology on social life are concentrated and concluded that most research on this subject is in the United States, United Kingdom, Australia, China and South Africa. Although Brazil was not mentioned, the country has a Center for Management and Strategic Studies (CCGE) for science, technology and innovation, with numerous research and publications, such as *Revista da Avaliação da Educação Superior* and the institutional journal of the Coordination for the Improvement of Higher Education Personnel (CAPES), called *Revista Brasileira de Pós-graduação*, published since 2004. The review by Pan and An (2021) shows that there is a tendency for the most influential studies today to move from the macro to the medium and local perspective, and from institutional aspects to national relevance. The set of literature surveyed by the authors was based on the analysis of citation frequency of the works.

This article follows the trend noted above when focusing on a theme, as did Novaes et al. (2018), Goldbaum, Antunes and Camargo Júnior (2021) and Silva, Paro and Ventura (2021). The assumption of this essay is the contribution of postgraduate studies in collective health - a term used here to designate the variety of denominations in the area such as public health, preventive medicine, social medicine and community medicine - to the Brazilian National Health System, even if it does not consist in an obvious and spontaneous movement. This happens because postgraduate training in public health has two commitments: on the one hand, it obeys the logic of the educational

dynamics of the highest level of higher education and the development of science and technology; on the other hand, its focus and objective are the knowledge and qualification of the health sector (SUS) in its national and local environment, in line with what is happening internationally. However, it is considered that the simple coexistence of these two logics does not necessarily guarantee impacts for the SUS, since scientific evidence is not mechanically adopted in practice, because its implementation is a political rather than an academic act. Thus, the objectives of postgraduate courses in public health are not the same as those of the SUS, although there are times and places where they meet.

The first hypothesis of this article assumes that the training of people in collective health, the conduction of research in this field (focus of postgraduate studies) and its implementation by the SUS, although they have points in common, are located in different contexts that can even prevent a productive dialogue between them (Novaes et al., 2018). The second considers that, even considering the cited limitations, there is a non-trivial benefit provided by postgraduate programs for the development of SUS. It is worth noting that Brazilian scientific production in health has doubled its share of world production in the last two decades, reflecting a steady growth led by some research areas on the Zika virus and HIV, mental health, innovative oncological treatments and primary care. It is also noteworthy that the health sciences - including collective health - are a relevant part of the Brazilian scientific production.

By applying filters and metrics of centrality in order to expand the understanding of the relationships between thematic groupings, the CGEE 2021 report with data from Brazilian postgraduate courses observes that public health (collective health), in addition to occupying the fifth position among the main clusters in terms of volume of articles, is the most central group in terms of influence and prestige in relation to the health studies network as a whole and is accompanied by the category "Primary Health Care". In the CGEE (2021) this area is separated from the theme "public health/collective health", which is a conceptual mistake.

If the referred denomination were inserted in the appropriate field, the set would occupy the first place.

The bases that support this text are articles and reports that deal with the significance of science, technology and innovation to the development of the world and the country (OECD, 2013; CGEE, 2016; 2021); articles dealing with the job market of former postgraduate students (Goldenberg; Schenkman, 1997; Hortale et al., 2010; 2014; Gomes; Goldenberg, 2010; La-Rotta; Barros; Donalísio, 2018); and testimonies of course coordinators about their programs, whose relevance is highlighted in the analysis produced here. It is understood that the contribution of the area covers the scope of curricula, lines of research and the performance of former students in the jobs they assume as subjects of action: professors, researchers, master's students, doctoral students, scientific initiation students, technicians and service users.

Specificity and importance of postgraduate training in public health/collective health

The people trained by the postgraduate programs in public health in Brazil are part of a much larger universe of professionals from all areas of knowledge that make up the science and technology system. According to a study by the CGEE (2021), from 1998 to 2017, 168,143 PhDs and 510,346 Masters completed their courses at Brazilian universities and research centers, in all areas of knowledge (teachers and researchers graduated abroad were not counted). Based on the year 2017 - a date that deserves an explanation, as it was the last year in which official information about the programs was published -, the Public Health area awarded 1086 master's degrees and 310 doctoral degrees (2.6% and 2.85%, respectively, of the total of all areas), with an increase of 535% of master's and 369.7% of PhDs in relation to those graduated in 1996, the year in which CAPES statistics began.

The formal employment rate of Masters in Public Health in 2017 was 75.2% among those who completed a professional master's degree and 65.8% among those who completed an academic master's

degree. In the latter case, it is important to note that 27% of those who completed this level of education immediately entered the doctorate. In Brazil, the employment rate of masters (from all areas) in relation to the total population of employees, in 2016, was 5.9/1,000; and that of PhDs, 2.6/1,000. This highly skilled workforce is of strategic importance for national development.

According to Florida (2012), the desirable average rate of the population responsible for leveraging and sustaining the development of a nation, a group he calls the “creative class”, would be 25/1,000. Today, the country that surpasses this ideal is Switzerland, with around 28 PhDs per 1,000 inhabitants (OECD, 2013). Although it is not just the master’s and doctoral degrees that ensure the strength of this set, all of the more advanced countries emphasize the higher levels of education as strategic. PhDs are considered the group most likely to contribute to the advancement and diffusion of knowledge and technologies and, as such, are often seen as actors that play a key role in economic growth based on knowledge and innovation. Although academic careers are the main destination of this group, their presence is increasingly visible also in the high positions of companies and public administration in central countries of capitalism, as shown in the OECD document (2013), and also in Brazil, as details the CGEE report (2021).

Florida’s (2012) conception is based on a classification of the work world that is divided into four categories: (1) the industrial working classes; (2) the working classes in services; (3) the classes that work in agriculture; and (4) the so-called “creative class”. In it are grouped people who perform tasks increasingly combined between intellectual and primary forms of production. For Florida (2012), the creative classes are composed of three groups. The first, called the “super-creative nucleus”, is made up of physicists, mathematicians, chemists, engineers, information professionals, economists, social scientists, health professionals, architects

and academic managers. The second, called by Florida as “bohemian”, is made up of occupational groups in the sphere of art and entertainment. The third, entitled “creative professional”, is composed of highly technically qualified employees, such as managers, organization specialists, business consultants, administration mediators, brokers, finance professionals, members of legislative bodies, employees, managers and administrators of the highest levels of public administration.

Therefore, as part of the arguments developed above, it is understood that it is possible to effectively address in this article: (a) the diffuse effect of raising the formal education of professionals in the area, which hypothetically leads to improving management informed by scientific evidence and formulating knowledge-based health policies;¹ (b) the contribution of professors, researchers and postgraduate students in the formulation, implementation, and evaluation of health programs, generally carried out from lines of research that translate, among other products, into theses, dissertations and articles; and (c) advisory activities and participation in the creation, implementation and evaluation of hard and soft technologies used in SUS services.

Organization of the programs with areas of concentration aimed at SUS qualification

In an internet survey with *stricto sensu* postgraduate coordinators, all of the respondents were unanimous in stating that the curriculum and lines of investigation are structured with a view to training qualified human resources to work in research and development in the SUS, in its management and service practices.² Regarding the scope of this statement, there is a difference between the larger and more consolidated programs, such as those of the Faculdade da Saúde Pública (SP), Escola Nacional de Saúde Pública (RJ), Instituto de Saúde Coletiva (BA), Instituto de Medicina Social

1 This item is based on a level of effectiveness called by Ottoson (2009) as the use and dissemination of knowledge and, to a lesser extent, as implementation, transfer and popularization of academic knowledge.

2 MINAYO, MCS “Data for Postgraduate performance in public health and SUS development: is there a relationship?”. *SciELO Data*, V1, 2022. DOI: 10.48331/scielodata.4YQQLV. On press.

(RJ), Medicina Preventiva de São Paulo (SP), Saúde Coletiva (Unicamp), Epidemiologia de Pelotas (RGS), Saúde e Ambiente (RJ), among others, which have a very clear national scope in the program description, and the most recent ones, which focus, in the foreground, on regional and local problems, without neglecting the national and international context. One point where they all converge concerns the content of the lines of investigation that are mostly organized around studies of health problems, SUS management and evaluation of policies, programs and service performance.

Although the postgraduate training is conceived as a program, its analysis requires distinguishing its contributions taking into account the specificities of the three courses that compose it today: the doctorate, the academic master's degree and the professional master's degree.

Doctorate

The doctorate is today the flagship of postgraduate training investments. This preference is evident in the core countries of capitalism, which emphasize the achievement of autonomy by the postgraduate student, aiming at the performance of research, development, public and private administration activities (OECD, 2013; Brass et al., 2010; Morrison et al., 2011; Gemme; Gingras, 2012; Kemp; Newnham; Chapman, 2012; Minayo, 2019). In the United States and several European countries, the percentage of PhDs employed reaches more than 95% (OECD, 2013), evidencing the high degree of incorporation of the field of science, technology and innovation in social and academic life. In Brazil, this percentage reaches 75% (CGEE, 2016), although in the area of public health it is a little higher (79%).

At the same time that postgraduate programs invest in this higher level of training, institutions are accountable about their performance to governments. There is strong global competition between higher education schools, and their bargaining chip (their product) is the former student, depending on whether they are well-educated and successful in managing public or private affairs, or as researchers and professors. This asset is strongly present in the world ranking

of universities. And, for this ranking, process and product are generally evaluated. In the first case, great value is attributed to academic supervision, which is treated as an extremely relevant professional act, both for the professor/researcher and for the prestige of their home institution (Hortale et al., 2014; Minayo, 2019). In the second, the success of graduates as professors, researchers or managers feeds the institutional reputation (Dysthe; Samara; Westrheim, 2006; Walker et al., 2009; EUA, 2008; Kamler, 2008; Halse; Malfroy, 2010; Brass et al., 2010; Altbach; Salmi, 2011; Morrison et al., 2011; Gemme; Gingras, 2012; Kemp; Newnham; Chapman, 2012; OECD, 2013).

The performance autonomy that a PhD gains once graduated often distances him from his first career choice. Studies (OECD, 2013; CGEE, 2016; 2021) show that the leadership role they start to exercise usually does not correspond to the field initially chosen. In this way, it is possible that a collective health PhD is classified as a high-ranking administrative staff of the SUS or any institution that requires intellectual leadership, autonomy of thought and management capacity. An interesting point observed by La-Rotta, Barros and Donalisio (2018), when evaluating graduates of Unicamp's Collective Health Program in 24 years, states that the percentage of those who performed care activities before their doctorate decreased by 28%. PhDs began to perform more teaching (75.6%), research (61.9%), and management (30.1%) functions and less healthcare functions (23.9%). This finding is supported by national (CGEE, 2016; 2021) and international (USA, 2008; OECD, 2013) studies, showing that PhDs are primarily in universities and in high management roles.

Academic Master's Degree

The literature shows a tendency in European countries to treat academic master's degrees in the background, almost subsumed as part of the training that leads to the doctorate (OECD, 2013; USA, 2008). In Brazil, however, particularly in the public health area, this postgraduate level plays a fundamental role. In the study by La-Rotta, Barros and Donalisio (2018), for example, it is observed

that 51.5% of Masters graduating from public health courses are currently dedicated to care, and 30.1% are managers. Of the latter, 65.4% are at the municipal level, 8.2% at the state level and 2.7% at the federal level. It can be concluded, therefore, that in States and Municipalities, Masters have a more prominent role in care and management than in the academic area, and it is at this level of training that collective health postgraduates contribute more immediately to the development of SUS.

Professional Master's Degree

Professional master's degrees should be highlighted, which since the 1980s have been on the political agenda of higher education in the country and officially became effective from 1997 onwards. Ordinance No. 131/2017 of CAPES recognized and regulated them as *stricto sensu* postgraduate training that aims to contribute to the national productive sector, in the sense of adding greater competitiveness and productivity to companies and public and private organizations. Consequently, its curricular structure was induced to emphasize the articulation between updated knowledge in the scope of the course, mastery of the relevant methodology and application oriented towards professional performance. For this, the ordinance provides that a portion of the teaching staff must be made up of professionals recognized in their areas of knowledge, but also for their qualifications and performance.

In the view of Hortale et al. (2010) and Silva et al. (2017), although they are the youngest courses in the programs, professional master's degrees are undeniably important, as is the case with those aimed at the public health area, as they establish a direct relationship between the training proposal and the activities that the master's student carries out. The authors highlight the professional master's degree as a rich possibility for exchanging experiences and knowledge between the market and the university, giving social resonance to research, systematic reflection on practices and teaching possibilities based on professional experience. Hortale et al. (2010) also report the substantial changes in the work process and in the increase

in the ability to solve problems, narrated by those who work in health services. Santos and Hortale (2014) also refer to meeting everyday demands. Nevertheless, the professional master's degree brings contributions to the service, especially when there is organizational support for those who participate in this improvement and for the innovations that students propose.

An example is taken here of what has been done by the Sergio Arouca National School of Public Health (ENSP), of the Oswaldo Cruz Foundation (Fiocruz), which implemented its first professional master's degree in 2002; and between 2004 and 2016, 752 dissertations were defended, focusing on health management and innovation (Oliveira, 2018).

In the courses that exist today - public policies, health management, health surveillance and science, technology and innovation - greater affinity between teaching, research and action can be observed, as this level of training aims to contribute to the improvement and strengthening of the SUS and health science and technology programs in priority sectors. These courses aim to train qualified professionals and inducers of change, through the adoption of new concepts and practices, developing products of applicability in the improvement of the SUS and the health science and technology system. The student body is made up of professionals from the Ministry of Health (MS), the States and Municipalities, and employees of the institution and federal entities who work in the various health areas. In the Master's in Science, Technology and Innovation in Health Policy and Management, for example, there was significant investment to train workers at Fiocruz, the National Cancer Institute (INCA) and the National Institute of Traumatology and Orthopedics (INTO). Another characteristic is that the proposal of a course goes as far as the demand requires: many were held outside the headquarters in Rio de Janeiro (DF, CE, MS, PA, RO, MG and BA), in three mentioned areas of concentration: development and public policies; health management; and health surveillance.

Another interesting case, presented here as an example, is the professional master's degree in Health Technology Assessment (ATS), from

the National Institute of Cardiology (INC), which began in 2013. The program's creators consider that training professionals in ATS is a structuring strategy for the SUS. Students receive training in health economics, public management, evaluation concepts and practices, and epidemiological training. The course brings together, as students, professionals from INC, INTO, INCA, Instituto Fernandes Figueira (IFF), Grupo Hospitalar Conceição (CHC), National Health Agency (ANS) and National Health Surveillance Agency (Anvisa). Students are qualified to prepare technical ATS reports, according to the demand of the Department of Management and Incorporation of Health Technologies of the MS, and to produce and disseminate scientific knowledge in the area. As an example, the following have already been carried out: (1) a Brazilian valuation study of the Euroqol³ to assess health-related quality of life; (2) analysis of the use of preference patterns of the Brazilian population in economic evaluations; (3) chapter of an international book on HTA for hospitals (with the collaboration of graduates); (4) dissemination of techniques such as grading the quality of evidence and strength of recommendation for decision-making in health (GRADE), a tool for assessing the quality of clinical guidelines (AGREE) and monitoring of the Technological Horizon (MHT). An important point, in the latter case, is that partnerships to achieve the scope of training are not limited to national institutions. There are, for example, exchanges with the London School of Economics, Leicester University, the Pan American Health Organization in Washington and the University of Florida. Students who complete the course are supported until their work is published, either as an academic article or as a technical production, and this support translates into help in writing the text, funding for translation, help with preprint submission, preparation of banners, tickets and registration in congresses (INC, 2021).

The graduates: Where are they? What do they do?

In an article about public health postgraduates between 1990 and 1994, Goldenberg and Schenkman (1997) worked, among other points, with their social insertion. Most were inserted in the job market as professors and researchers in universities, institutions and public foundations (54.1%). At the time, the authors drew attention to the high percentages of those working in public health care services or as managers (29.2%). Former students, when asked, mentioned the relevance of postgraduate studies in their professional lives, and most of them reported qualitative changes in the performance of activities and salary increases. The authors did not differentiate between doctoral and master's graduates.

In 2010, Gomes and Goldenberg carried out a new survey, this time distinguishing graduates at the doctoral, academic master's and professional master's levels in collective health. The study covered those who graduated between 1997 and 2009. The authors found 81.6% of PhDs in teaching activities, of whom 87.2% worked as researchers, 11.3% were employed in technological development, 35.5% provided care, and 29.4% worked in SUS management.⁴ Among graduates of the academic master's degree, the highlights were for teaching, care and management; and among those trained in the professional master's degree, 70% were performing management activities and 30% healthcare.

The study by La-Rotta, Barros and Donalísio (2018), which analyzed public health postgraduates in Campinas between 1992 and 2016, found that, of the PhDs, 78.3% were professors, 65.22% were researchers, 30.1% managers and 23.9% provided healthcare. The authors pointed out that there was a loss of 28% of those who worked in care before the doctorate in favor of academic

³ Euroqol is a Research Foundation that supports and carries out scientific research, focusing on the construction of instruments that describe and value health. Among its activities is the construction of a generic questionnaire (EUROqol-5) on quality of life, which encompasses five health domains (mobility, personal care, usual activities, pain/discomfort and anxiety/depression) with 3 response levels and a visual analog scale (VAS), which goes from zero to 100.

⁴ These percentages do not round up to 100% because many professionals perform more than one duty.

employment after the end of the course. On the other hand, those who attended the master's had a more homogeneous distribution: 57.6% were professors, 51.5% worked in care and management, and 28.6% worked in research. Of those who held management positions, 65.4% were in activities at the municipal level, 8.2% at the state level and 2.7% at the federal level.

In the evaluation of Hortale et al. (2010), 60% of the professional master's graduates at ENSP/Fiocruz considered that the course produced substantial changes in the development of their functions, and 72% had the expectation of developing improvements in their work processes. In addition, 64% evaluated that the course expanded their sources of information on the area of activity, with a substantial change in the ability to solve problems at work. All said that their knowledge had increased, although 47% mentioned that the course did not substantially change their attitude as a servant. Even though it is an academic activity directed towards practice, 39% of the graduates answered that their work proposal developed in the course was not implemented, either due to lack of support from the board (30%), or for other reasons (70%), which indicates low institutional commitment to the potential contribution of a more qualified employee. This last piece of information suggests several issues: the first, already mentioned, is that having qualified training does not always guarantee the quality of professional practice; the second is that there is a high dose of will and personal initiative on the part of civil servants in accessing the professional master's degree, which is possibly not accompanied by the wishes of their superiors; and, finally, that there is an institutional deficit in the inductive process for the courses offered today.

Final considerations

The first conclusion that this brief study raises is that support to the SUS by postgraduate programs is neither simple nor automatic. Conducting health research and formulating policies in the sector, although they have points in common, are situated in different contexts. Thus, it cannot be said that there

is a direct influence of postgraduate courses on the SUS performance, particularly in its organization, management, financing and performance, because such functions depend on the politicians and administrators in power, whether they are PhDs and Masters or not.

PhDs from public health programs are more involved in research and teaching than in management. However, they constitute staff of excellence and contribute to raising the quality of the national political and scientific debate and to the better performance of public administration as managers, specialists and advisors. Training at the master's level is the one that has had the most direct impact on the SUS, whether in terms of employability or in terms of insertion in management, care and the development of technologies for action.

Returning to the starting point of this text, it is concluded that the mandatory requirements of the science, technology and innovation system predominate in the programs. Thinking about its relationship with the SUS, it is understood that the canons of scientificity are not measured by an instrumental reason. It is often observed that the investigations developed within the lines of research do not have immediate application, although they are fundamental for the development of the country and to guide the policies of the sector.

Apparently, contrary to what was said in the previous paragraph, an orientation for action that is theoretically highly qualified is explicit in the justification of all the programs consulted for this work. Therefore, based on the results of the various studies cited, it can be said that postgraduate studies in public health train people with a high level of knowledge in the area and the ability to enter universities, research institutions and municipal, state, and federal management positions. All this work contributes directly or indirectly to the qualification of SUS.

It is also possible to affirm that, by bringing the two universes closer together - the academy and SUS management -, the postgraduate training in collective health allows, in practice, the exchange between researchers, managers and professionals who work in the services, favoring not only the use of scientific knowledge by managers,

but also the generation of new knowledge by researchers. Therefore, a reciprocal contribution is made. Academy and health services get closer through different means: managers who become postgraduate students; researchers who temporarily occupy positions in the health services; congresses, conferences and seminars that bring together both audiences. There are different types of texts (scientific journals, professional journals, mass media, etc.) that circulate between the two groups. It is worth noting that the intensity of getting closer together conferred by this diversity of means is of the utmost importance for the exchange to actually take place and, thus, scientific knowledge to support health policy-making.

There is a specific type of contribution - which, in fact, is reciprocal between the programs and services provided by SUS - which may go unnoticed because it is less obvious. It is a contribution to management practices through scientific evidence and to the health policy-making, based on the input of theoretical knowledge. Indeed, among those who formulate and those who study health policies, the potential contribution of research results to decision-making is recognized. At the international level, the World Health Organization (WHO) took the initiative, still in 1999, to organize the Alliance for Health Policy and Systems Research, an alliance whose mission is to promote the generation and use of research on health policies as a means to strengthen national health systems (WHO, 2022). It includes Brazilian researchers who constitute the postgraduate programs in public health in the country.

In conclusion, this article has not measured the impact of the contribution of postgraduate courses, but a level of effectiveness called by Ottoson (2009) as the use and diffusion of knowledge and, to a lesser extent, as the implementation, transfer and popularization of academic knowledge. It is also relevant to point out that this study has limitations, such as the fact that it did not start from an exhaustive review, plus other flaws that undoubtedly stem from the author's own difficulties in understanding.

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Contribution of the authors

Minayo was responsible for analyzing the research data, writing the article, checking references and critical analysis.

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