

MASSIVE OPEN ONLINE COURSES (MOOCs) FOR HEALTH PROFESSIONALS: WHAT WE CAN FIND IN THE LITERATURE

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Background. Massive Open Online Courses (MOOCs) provide distance learning opportunities for healthcare professionals on different topics. However, an overview on this topic is not available to date in the literature. **Aims.** To summarize the available literature on MOOCs dedicated to healthcare students and professionals. **Methods.** A review was conducted following the PRISMA guidelines in PubMed, CINAHL, Cochrane, Scopus, PsycInfo, and MEDLINE databases. Primary and secondary studies published between 2020, and July 2024 were included. The quality of the studies was assessed using the Joanna Briggs Institute tools. **Results:** Forty-three studies were included. The development of MOOCs is a worldwide phenomenon. MOOCs are attractive due to their many topics, flexibility, ability to be customized to learners' needs, and frequently free nature. Nevertheless, just few MOOCs have focused on topics related to vulnerable populations. **Conclusion:** Research on MOOCs has significantly increased during and after the pandemic. This educational format is effective, although there are some barriers to overcome. There is an urgent need to implement MOOCs that focus on all populations, particularly the vulnerable ones, to educate health professionals about challenges and disparities.

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1 Background

1.1 Massive Open Online Courses

Massive Open Online Courses (MOOCs) are training courses defined as 'Massive' because they can enroll thousands of participants; 'Open' because they are free, open to all, and require no prerequisites; 'Online' because they are accessible 24/7 via the web; and 'Courses' because they are based on specific learning objectives (Hendriks et al., 2020). MOOCs are online training courses characterized by free accessibility, flexibility, and the absence of prerequisites. They represent an important innovation for learning and improving continuing education and professional development, especially in healthcare (Yilmaz et al., 2021). MOOCs offer health professionals, especially nurses, an effective solution for continuing education to acquire knowledge and skills that will enable them to respond effectively to the health needs of the population (Bendezu-Quispe et al., 2020). During the COVID-19 pandemic and subsequent lockdown, the use of MOOCs demonstrated their potential to ensure access to training for health professionals (Paules et al., 2020). Therefore, distance learning through MOOCs has proven to be an effective learning strategy in this new healthcare context (Nieder et al., 2022). Massive Open Online Courses (MOOCs) provide distance learning opportunities for healthcare professionals on different topics. For this reason, it is interesting to give an overview of this phenomenon to understand its evolution and importance.

1.2 Aim

The aim of this study was to summarize studies on MOOCs dedicated to healthcare students and professionals. In addition, the aims were to explore the facilitators and barriers to participation in MOOCs.

The following research questions were set: a) 'What is the status of research from 2020 to 2024 in the literature regarding MOOCs dedicated to students and health professionals?'; b) 'What are the facilitating factors and the barriers to participation in MOOCs?'

2 Methods

A review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021), in PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane, Scopus, PsycInfo, and MEDLINE. Primary and secondary studies published between 2020, and July 2024 were included. Studies on MOOCs dedicated to students or health professionals whose content focused on facilitating factors and the barriers to participation were included. Comments, letters, books, Delphi studies and articles without the full text were excluded. The following keywords were adopted: 'Massive online open course', 'MOOC', 'online course', 'healthcare professional', 'nurs*', 'education', combined with the Boolean operators AND or OR. The Rayyan platform was adopted to organize the retrieved sources and allowing efficiency to the screening process (Ouzzani et al., 2016). A total of 3061 studies were identified, which was reduced to 2071 after duplicates was removed. The potentially eligible studies were first screened based on their title and abstract: 1959 studies were excluded as not satisfying the inclusion criteria. Therefore, 43 article were included. Two researchers independently screened the studies; in case of disagreements a third researcher was consulted to reach consensus. Then, an extraction grid was created, including: author(s), year of publication, journal, country; purpose(s) of the study; study design; data specific to the MOOC, including (a) platform, (b) developers, providers, (c) language(s), (d) students enrolled, (e) teaching methods, (f) pedagogical foundations, if described; evaluation method(s) and tools used; facilitators and barriers to MOOC effectiveness; whether the MOOC included or targeted vulnerable populations.

3 Results

The studies publication were mainly from Australia, Brazil and Canada, and some did not specify the country of origin. MOOCs were mainly developed by universities, and the main objectives were to assess their impact and effectiveness on learners (Eglseer, 2023; Floss et al., 2021), to identify barriers and facilitators in continuing education (Khin et al., 2022; Longhini et al., 2021a), and to map the characteristics of the content provided (Bendezu-Quispe et al., 2020; Nieder et al., 2022). MOOCs addressed a range of topics, including infectious diseases such as COVID-19 and associated management strategies (Floss et al., 2021; Jones et al., 2024; Leathwick et

al., 2023) the prevention and treatment of chronic illnesses (Longhini et al., 2021a; Nieder et al., 2022; Reparaz et al., 2020, Yilmaz et al., 2021), and effective communication techniques with patients (Bendezu-Quispe et al., 2020; De Castro et al., 2020). The most represented teaching methods were videos, discussion forums, lectures, text and article readings, case presentations and assignment of exercises and tasks. MOOCs are attractive due to their many topics, flexibility, ability to be customized to learners' needs, and frequently free nature (Bendezu-Quispe et al., 2020; Longhini et al., 2021a). Nevertheless, just few MOOCs have focused on topics related to vulnerable populations such as the LGBT population, the prison population, pregnant women (Caitano et al., 2022), pregnant adolescent girls (De Castro et al., 2020), adolescents and minors (Ibrahim et al., 2021) and vulnerable people with diabetes (Mackenzie et al., 2024), according to Gordon et al. (2020) classification. Moreover, several barriers have been identified, including the need of having access to the Internet and advanced technological skills (Leathwick et al., 2023), the low quality of the design, the limited or too difficult content, the use of reading material, the lack of selective blocks for enrolment, the unspecific subject matter, the lack of experts to supervise the courses and MOOCs that are too long (Longhini et al., 2021a). Other barriers that emerged were the lack of formal accreditation (Mackenzie et al., 2024), the voluntary nature of the course (Nieder et al., 2022), a single trainer teaching thousands of students making meaningful interaction difficult (Schettino et al., 2024), and finally scheduling problems (Wang et al., 2023) and lack of time (Longhini et al., 2021a; Mackenzie et al., 2024; Nieder et al., 2022; Schettino and Capone, 2022). A significant dropout rate attributed to insufficient motivation or social support was also observed (Nieder et al., 2022).

4 Discussion and conclusion

This review highlights a strong expansion of MOOCs for healthcare professionals, showing a significant increase in studies from 2020, in line with the increase in the offer of these courses. The results highlight how MOOCs offer a unique educational opportunity due to their flexibility and affordability. As in the review by Longhini et al. (2021b), numerous factors have been identified that facilitate or hinder the effectiveness of MOOCs. In the present study, the factors seem to be oriented towards the dimensions of the MOOC itself and its educational content, the characteristics of the participants, the socialization aspect and the organizational context. This suggests the need to design MOOCs in multidisciplinary teams, taking

all these aspects into account, especially to address critical issues such as high dropout rates (Bendezu-Quispe et al., 2020; Leathwick et al., 2023; Longhini et al., 2021a; Nieder et al., 2022). Universities continue to be the main developers of MOOCs, due to their ability to ensure high quality content and inclusivity (Eglseer, 2023; Floss et al., 2021). The results indicate that MOOCs are a valuable resource for the continuing education of healthcare professionals, but further studies are needed to improve their effectiveness and assess their impact on clinical practice. Moreover, there is an urgent need to implement MOOCs that focus on vulnerable populations to educate health professionals and address challenges and disparities.

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