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Telehealth adoption in palliative care: a systematic review of patient barriers and facilitators

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Abstract

Background Telehealth is increasingly used in palliative care and its application is seen as one possible solution to improve access to palliative care services, thereby providing additional support for patients with advanced cancer. By completing a systematic review of the literature this research identifies the barriers and facilitators of telehealth adoption by patients with advanced cancer to determine the type of healthcare services needed to meet their needs.

Methods A systematic review of the literature was conducted on CINAHL, MEDLINE, EMBASE, PsycINFO, PsycArticles, the Cochrane Library, Scopus, Web of Science, ScienceDirect, IEEE Xplore as well as grey literature to identify the barriers and facilitators of adopting telehealth by patients with advanced cancer in palliative care. The search was registered on PROSPERO (CRD42023446460) and focused on articles published between March 2021 and August 2023, after the first wave of COVID-19.

Results Overall, nine papers were identified and included in the review. Patients with advanced cancer were found to be willing to use telehealth reporting a high satisfaction. Patients with advanced cancer receiving palliative care experienced barriers such as software and hardware failures as well as technical issues. Complicating this even further was a language barrier, as well as aging and medical issues. Older patients found the use of telehealth difficult and reported needing additional support around its use, yet telehealth was broadly found to be accepted. Telehealth facilitated a sense of independence, control, comfort and security to patients. Operating in the background while remaining available it promoted a sense of empowerment for patients.

Conclusions Identification of the barriers and facilitators of telehealth use by patients with advanced cancer in palliative care, contributes to condition specific benchmarks for telehealth use and further informs national treatment guidelines around patients with advanced cancer needs to ensure sustainability and relevance now and in the future.

Keywords Telehealth adoption, Systematic review, Patients with advanced cancer, Barriers, Facilitators

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Background

Healthcare systems have redirected resources towards telehealth services, as it emerges as one viable solution for giving additional support when delivering palliative care to patients with advanced cancer [1]. Palliative care offers support around alleviating suffering and promoting well-being for patients with advanced cancer [2]. Palliative care is a crucial component in the care continuum for patients, having a recognised potential to enhance quality of life, alleviate caregiver burden, and extend life expectancy [3].

Telehealth provides healthcare remotely using telecommunications technology [4] and has been described as a complementary tool to palliative care [5]. Many unique benefits of telehealth have been identified for patients with advanced cancer in palliative care. These include convenience, increased access, and privacy from the comfort of their own home [6]. The landscape of healthcare delivery has transformed since COVID-19, with a marked increase in online consultations within both community and acute services [7, 8]. Investing in healthcare resources aligns with government led initiatives that emphasise the importance of expansion in capacity to meet the escalating demand for patient-centered healthcare services. Consequently, investment in digital health more broadly has become a priority to alleviate the strain on service delivery [9]. Rather than replacing traditional in-person care, telehealth is seen as a complementary to traditional health services which can be tailored to the needs of patients [4, 10, 11].

Patients are knowledgeable and well informed about their health and therefore demand more support from healthcare services [12]. Acknowledging this shift in proactive demand sees patients as collaborative partners in healthcare provision which contributes to the alignment of patient needs and preferences and emphasises the importance of a patient centred approach [13]. With that in mind, telehealth adoption relies on “buy in” not only from patients but other stakeholders including health care professionals, families and carers [14]. The shift toward the use of telehealth has garnered positive patient feedback, with many studies finding a high level of satisfaction with virtual consulting [15]. Although telehealth is part of the action plan in the development of global and accessible healthcare systems [16], there are factors like regulation, funding, structural and regulatory frameworks which need further support to scale up its development and implementation. Previous research has emphasised the need for all individuals to have access to effective care [17], which in turn aligns with the UN Sustainable Development Goal 3 of a right to health and wellbeing [18]. Telehealth is one such sustainable solution that can contribute to an efficient and equitable use of resources.

Existing literature asserts that not all cancer care consultations may be suitable for telehealth [19], it is evident that “one size does not fit all” [20]. As Dame Cicely Saunders, the founder of modern palliative care services postulates “*Palliative care begins by understanding that every patient has his or her own story, relationships and culture, and is worthy of respect as a unique individual*” [21]. To ensure a safe, effective allocation that preserves the quality of care, we must first determine the barriers, and facilitators of patients with advanced cancer¹ in palliative care when adopting telehealth. To the best of our knowledge based on our interrogation of the literature, systematic reviews specifically focusing on telehealth adoption by patients with advanced cancer do not exist, therefore this evidence will be synthesised to determine the type of healthcare service required to fit their needs to further inform national treatment guidelines around patients with advanced cancer. In addition, by identifying barriers and facilitators of telehealth adoption by patients with advanced cancer we can begin to reveal where inequities exist.

Methods

This systematic review was developed in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines and the Population, Intervention, Comparison, Outcome and Studies (PICO) framework which is outlined in the eligibility criteria below. The search strategy intended to identify relevant studies addressing barriers and facilitators identified by patients with advanced cancer adopting telehealth in palliative care. The inclusion criteria were limited to studies that focused on patients with advanced cancer in palliative care; types of telehealth including telephone consultations, video-enabled care and remote patient monitoring; studies written in English; and those published between March 2021 and August 2023 (See Table 1). Articles were rejected for a variety of reasons including: if the focus was primarily on healthcare professionals, caregivers or paediatric cancer patients; Non-cancer diagnosis or cancer diagnosis that does not meet the criteria; letters to the editor, editorials, protocols, commentaries, short communications, literature reviews, opinions, perspectives, and discussion: or did not contribute to our objective of identifying facilitators, barriers or effects on patient satisfaction. The search was registered on PROSPERO (CRD42023446460). The search strategy was developed using a combination of free text words and subject headings relevant to CINAHL, MEDLINE, EMBASE, PsycINFO, PsycArticles, the Cochrane

¹ Definition: Advanced cancer, defined as (Roberts et al., 2018): those with metastatic disease at diagnosis, and/or where disease is progressing following treatment (local or metastatic spread), and/or where the prognosis is estimated to be less than a year.

Table 1 Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Population	Patients with advanced cancer (any type), defined as metastatic disease at diagnosis, and/or with local or metastatic spread following treatment, and/or where prognosis is estimated as less than a year (> 18 years old).	Healthcare professionals, caregivers, paediatric cancer patients. Non-cancer diagnosis or cancer diagnosis that does not meet above criteria.
Intervention	Consultations with a healthcare professional through utilising telecommunications technology including, telephone consultations, video enabled care and remote patient monitoring.	
Comparator	N/A	
Outcome	Experience/perceptions/attitudes of patients and Barriers and facilitators of advanced cancer care patients adopting telehealth in palliative care.	
Studies	Qualitative, Quantitative and Mixed studies	Letters to the editor, Editorials, protocols, commentaries, short communications, literature review, opinion, perspective and discussion

Table 2 Literature search strategy

Search	Keywords
#1	telehealth OR telemedicine OR telenursing OR telecommunication OR telecare OR 'remote monitoring' OR telemonitor OR teleconsult* OR teleconference* OR telephone OR 'remote consult' OR videoconsult* OR videoconferenc* OR 'electronic health' OR ehealth OR 'mobile health' OR mhealth OR 'virtual health*' OR 'virtual care' OR 'connected health*' OR 'remote care'
#2	Palliative OR 'Palliative Care' OR 'Palliative Medicine' OR hospice OR 'terminal care' OR terminally ill OR 'end of life'
#3	(Cancer* OR malignan* OR neoplasm* OR tumo* OR tumour*) AND (advanced OR end-stage OR terminal OR 'stage 3' OR 'stage 4' OR 'stage III' OR 'stage IV' OR metast* OR meta-stat*)
#4	March 2021 to August 2023

Library, Scopus, Web of Science, ScienceDirect, IEEE Xplore and Grey literature (using BASE which emphasises open-access materials, making it a valuable resource for finding grey literature that is freely available without subscription) and refined using Boolean operators (See Table 2).

Our search terms were categorised into three categories, telehealth, palliative, and cancer. The overall search strategy is outlined on Table 2.

Papers were screened by their title and abstract by two reviewers (CM, DG) using Rayyan software [22]. Where conflict occurred then a third reviewer (AK) decided whether the study was included or excluded. To ensure the quality of papers key aspects of the study quality were assessed such as bias, study design, sample size etc. using the reliable and valid tool provided by the Joanna Briggs Institute (JBI) checklist [23]. These checklists were suitable as they can be tailored to different types of studies (i.e. Qualitative, Quantitative etc.). Two reviewers independently reviewed the papers (AK, FD) with a third reviewer (CH) if disputes arose. Consensus determined the rating given. Inclusion of the quality review results are available in the appendix A. Overall the quality of the included papers was good with most papers meeting the methodological criteria. However, the papers reviewed using the mixed methods appraisal tool did have limitations with some of the checklist criteria deemed not applicable (See appendix A).

Results

The flowchart shows the initial results of the databases search which yielded 2,460 papers (Fig. 1). This included 2,427 papers from the previously mentioned CINAHL, MEDLINE, EMBASE, PsycINFO, the Cochrane Library, Scopus, Web of Science, ScienceDirect, and IEEE Xplore. With a further 33 papers identified from grey literature resources. Next, 354 duplicate papers were removed before screening. The remaining 2,106 papers were screened (which included the grey literature) and of those 2,073 were excluded based on the inclusion criteria (all 33 papers in the grey literature were excluded). When the full text articles were screened a further 24 were removed leaving 9 papers for this review (See the appendix B).

Study characteristics

This systematic literature review identified nine studies that focused on the barriers and facilitators of telehealth use from a patient perspective (See appendix B). There were four qualitative studies [24–27], three quantitative studies [28–30] and two mixed studies [31, 32]. The patients' age ranged from 18 to 89 yrs old, with a significant emphasis on older patients across the studies, including two studies focusing solely on patients aged 60+ yrs [25, 30]. The studies were located in the UK [31], India [28], Canada [24], Italy [29], Finland [27], and the US [25, 26, 30, 32]. Diagnosis was focused on patients with advanced cancer (any type), defined as metastatic disease at diagnosis, and/or with local or metastatic spread following treatment, and/or where prognosis is estimated at less than a year. The review demonstrates

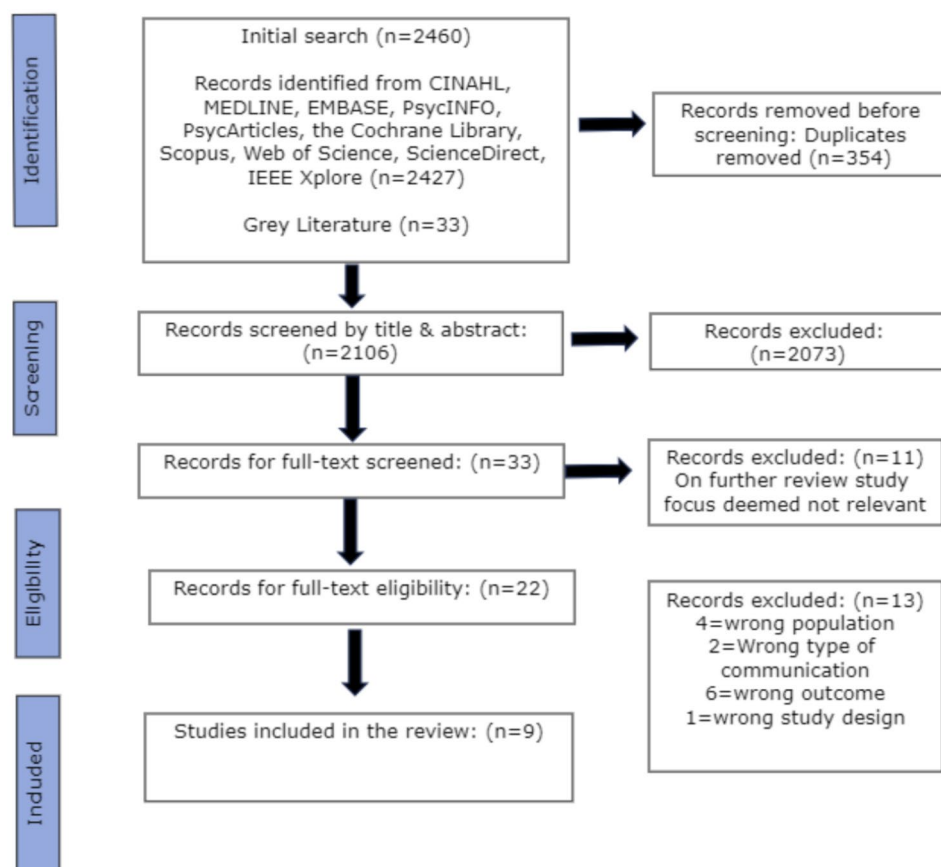


Fig. 1 Systematic reviews and meta-analyses flow diagram of study selection

how telehealth has integrated into palliative care for patients with advanced cancer. Among the identified studies, six addressed both genders, while the remaining two [26, 32] focused on female and one focused on male patients with advanced cancer [31]. Three primary modes of telehealth were identified: Audio/Telephone [24, 25, 29, 30], Video enabled care [24–26, 28–30] and Remote patient monitoring [26, 27, 31, 32]. Three studies concentrated solely on one type of telehealth [27, 31, 32] while the remaining six studies employed a combination of the modes [24–26, 28–30].

Although the focus was on patients with advanced cancer in palliative care, three studies included in the sample refer to caregivers [26, 29], and caregivers and clinicians with patients [25]. The reason for their inclusion was the limited number of studies available and the results associated with each group could be differentiated from one another.

Eight of the studies used primary data with a sample size varying from small ($n=6$) [26] to moderate ($n=134$) [32]. There was only one study that used a secondary dataset ($n=491$) [30]. The setting varied with some concentrating on telehealth delivery in a hospital [27] setting, while others delivered services in the community [28, 29]

or at home [26, 32] or a combination of these settings [24, 25, 30, 31].

Satisfaction with telehealth in palliative care among patients with advanced Cancer

Within seven of the nine papers reviewed there is an overall high satisfaction rate reported with using the modes of telehealth [24, 26–29, 31, 32] (the remaining two papers did not report satisfaction). With remote patient monitoring, 80% of patients in one study preferred using it with only a small minority needing help [31] while some patients felt safe and empowered [27]. In another study, 89.5% reported that they feel comfortable with their ability to use it [32]. Focusing on video enabled care, a study found that patients with advanced cancer rated the financial benefits the highest relative to technical quality, communication, time with the doctor, accessibility and convenience [28]. When this was combined with use of the telephone, ease of communication with the doctor or obtaining a prescription [29] was also reported, although the interpersonal connection and trust was missed [24].

Barriers of using telehealth in palliative care from a patient perspective

Significant barriers were identified within the literature, these included technical issues with telehealth technology, a lack of patient knowledge and experience in using the technology, patient demographics, medical and communication issues and the need for timely support to enable telehealth use. Patients with advanced cancer accessing palliative care experienced both software and hardware failures. Technical issues [24, 25, 30, 31] such as missing emails or emails going to spam [31], concerns about downloading an app [31], speed connectivity with the internet [25, 28, 30] and the associated equipment needed to support using telehealth were reported by patients with advanced cancer in palliative care [28–30]. Complicating these matters even further was a language barrier found in one study [30] as well as aging and medical issues leading to a loss of fine motor and cognitive skills [30], with some patients experiencing tiredness [31]. A lack of knowledge and experience using technology were cited as barriers to use in one study [24] with patients reporting a feeling of being overwhelmed [26]. Some older patients found its use difficult and gave up, preferring an in-person visit or a more hybrid approach [24, 29] emphasising the need to build trust [24] and needing the re-assurance of a physical exam. Patients also cited interpretation of body language and poor communication (healthcare professionals speaking over them) as a concern [24, 25, 29]. In three studies, it was found that patients wanted more timely support around telehealth [26, 31, 32] with the need for increased availability around information and continuity of care [27]. They argue that supports were too disease centred [27] or not helpful at certain points in their treatment such as when there were no symptoms. Finally, although some patients reported wanting more independence and control [27], in contrast others reported having no caregiver to help with using the technology [30] and wanting better communication skills from the provider [24].

Facilitators of using telehealth in palliative care from a patient perspective

We identified several facilitating factors that influence the use of telehealth amongst patients with advanced cancer. These focus on a patient-centred approach to delivering care such as increased efficiency (time saving for the patient and their families) [24], ease of use or usefulness of the technology [28, 32], comfort [24] not feeling alone [27], giving independence [24], convenient [25, 29], reduced travel times [29], delays were less disruptive [24], efficiency getting an appointment [24] time and cost savings [29], and avoidance of unscheduled visits to hospital [27]. Other factors include communication factors, such as providing a safe and secure means of engaging

with clinicians [25, 27] and societal factors such as telehealth being viewed as an indicator of progress being made in health service delivery models [27].

Two of the studies reported a general acceptance of technology use [25, 28, 29] with one study reporting a willingness to learn it [25]. Caraceni et al. found that 92% of patients did not feel neglected or discomfort on the phone or during a video consultation while Wickline et al. found that more than half of patients felt it enhanced communication with clinicians [29, 32]. Some patients felt comforted with the knowledge that online support was there as an alternative to control treatment related symptoms [27].

Two studies found that patients recognised that their data were secure and confidential [24, 28]. In one study the patients emphasised how telehealth had financial savings for them (e.g. reduced travel costs) and emphasised its alternative uses, and the fact that it is a onetime outlay which produced a good investment [28]. Although patients indicated it provided the tools and information that can lead to independence and control over their illness [27], more elderly patients in one study preferred onsite access to services [31] while others appreciated the benefits of a more blended model [24].

Three of the studies acknowledge that a more bespoke service may be required for certain diseases and for certain cohorts of the population as “*one size does not fit all*” [24, 25, 29]. LoCastro et al. emphasise the need to understand what patients want and to elicit patient preferences in advance to deliver these services [25]. To promote a feeling of safety and security some felt that support should be available at all times even when symptoms were not bad [27]. More elderly patients in two of the studies emphasised the need for in-person communication and wanted assistance in telehealth use [25, 29]. Patients also identified telehealth as a more suitable follow up tool to provide information and support [26].

In one study the provision of telehealth was reported as a positive externality (i.e. provided a societal benefit) by patients with advanced cancer, who interpreted it as a signal of the importance of patients and their care reflecting a commitment to making healthcare more patient-centred [27]. Patients emphasised that telehealth offers the advantage of a familiar environment, with family support and comfort particularly during difficult times such as receiving bad news [25]. Telehealth allowed more privacy and space to process emotions. In addition, it enabled conversations with professionals about patient wellbeing and more sensitive issues around for example sexuality and quality of life issues [27, 32] with some patients emphasising other factors such as replenishment of medications like opioids and other substances [30]. However, to facilitate these there is an acknowledgement that training, education, and support are needed [24, 29].

Discussion

Consistent with previous research, patients with advanced cancer are willing to use telehealth to access healthcare services [33]. Seven of the nine studies evaluated reported a high satisfaction rate with telehealth with the remaining two not reporting satisfaction. It is important to highlight that the majority of studies comprised of older patients, with two of these studies focusing on patients aged 60+ yrs. Consistent with previous findings the effectiveness of telehealth may vary dependent on the patients' age [34]. This study found age to act as a barrier for telehealth use, with many citing technological issues as significant obstacles [24, 25, 30, 31]. Complicating this even further are factors such as language barriers and increasingly complex medical issues. Koffman et al. 2023 postulate that health disparities are preventable and are a consequence of structural discrimination citing a person-centred approach with community support as an opportunity, to enhance equity and diversity in palliative care practice [35].

Overall, the results suggest that the diverse needs of patients with advanced cancer should be carefully considered when it comes to the use of telehealth as a means of health service delivery, and "*a one size fits all*" approach is inadequate [24, 25, 29]. Evolving healthcare needs, demands a responsive approach which requires adaptability and flexibility to tailor telehealth to meet the needs of patients with advanced cancer in palliative care. This review emphasises the need to give patients time and space, clear communication of workflow, and schedule preparation with contact made in advance if possible [27]. This review also highlights that dependent on the circumstances, patients and providers may need a quiet and confidential space for the telehealth consultation [25, 32]. It is problematic to assume that the workflow and nature of a healthcare professional-patient interaction that occurs in a face-to-face consultation can be directly mapped to telehealth. Establishing telehealth etiquette requires preparation, planning, time and education [36, 37].

This approach also fosters inclusivity, thereby improving access by offering a more human centred approach [1]. Bakitas et al. 2021 emphasise the need to not simply replace in-person visits with telehealth but provide a comprehensive programme of planning and training of healthcare professionals across the trajectory of cancer when offering support to patients and families [38]. The autonomy of the patient with advanced cancer must be respected and patients highlighted how telehealth can support their choices, desires and needs by providing convenient access to healthcare services. However, in line with previous research findings, it is essential to maintain open communication channels to ensure its effectiveness [39].

Consequently, these findings contribute to a blueprint for shaping telehealth to effectively meet the needs of not only patients with advanced cancer. It is possible that the findings could resonate across the broader cancer landscape including earlier stage and curative cancer populations. From a policy perspective, our findings have the potential to drive the integration of telehealth into palliative care policy thereby transforming the delivery of health and social care to help patients manage their health. Thereby enhancing patient access to care and ensuring that telehealth services are tailored to the specific needs of cancer patients through the continuum of their care.

Telehealth is found to offer a sense of independence, control, comfort and security, to patients operating in the background while remaining available when required [24, 25, 27]. This sense of empowerment necessitates the support of user-friendly platforms, educational resources, self-scheduling options, remote monitoring, personalised care plans and regular communication from the provider. Thereby, promoting the design of a more patient centred service. With empowerment, comes a steep learning curve for the patient particularly older patients who may require assistance in terms of human support and technical guidance. Bakitas et al. encourages the measurement of patient needs and highlights how services must recognise that many patients may be digitally illiterate and therefore supports are needed to reduce that inequity [38]. Patients felt telehealth with the right support can be true partners in their care resulting in high satisfaction, although it relies on patient engagement with the process and how comfortable they are with using technology.

Limitations and future research

There is a lack of consensus when it comes describing and defining telehealth as a concept in the existing literature. It is possible that some terms particularly acronyms or otherwise could be overlooked or missed in our search strategies. Also, only English language papers were examined which restricted other studies and may result in information bias. The search strategy was focused from March 2021 a wider scope and search strategy may have produced a more comprehensive review. Many of the studies included older patient populations, smaller sample sizes and were predominantly completed in the United States which could create bias in the overall results.

While it is not without significant challenges, our analysis reveals that telehealth offers opportunities for patients with advanced cancer and their families, healthcare providers and health systems more broadly. There are several opportunities for future research, see Table 3.

Table 3 Future research**Proposed research questions:**

How does telehealth impact symptom management outcomes in advanced cancer patients receiving palliative care?

What are the barriers and facilitators to telehealth adoption in underserved populations with advanced cancer?

How can telehealth better support interdisciplinary palliative care teams for advanced cancer patients?

What is the role of advanced telehealth technologies, such as AI-driven symptom management or wearable devices, in the delivery of palliative care for cancer patients?

How does telehealth impact caregiver burden and satisfaction in families of advanced cancer patients receiving palliative care?

How does the use of telehealth in advanced cancer care influence patient survival, quality of life, and caregiver outcomes over time?

Conclusion

Use of telehealth in palliative care for patients with advanced cancer has both advantages and disadvantages. Evidence suggests that there is a growing acceptance of using telehealth by patients with advanced cancer although consideration should be made for the diverse needs of the patient and their healthcare requirements. This literature review supports the following recommendations, including:

- A holistic and customised approach is required to design and implement a patient-centered approach to the delivery of telehealth services.
- Develop tailored training programmes for healthcare professionals, patients and their caregivers/families.
- Integrate feedback loops for patients and their families to capture the experiences of telehealth services.
- Leverage telehealth to support advance care planning between healthcare professionals and patients and their families.
- Explore innovative opportunities to leverage telehealth to reduce healthcare inequity in vulnerable populations.

Identifying the barriers and facilitators of telehealth use by patients with advanced cancer, contributes to the development of condition specific benchmarks for telehealth use to ensure sustainability and relevance now and in the future.

Abbreviations

PRISMA Preferred Reporting Items for Systematic Review and Meta Analysis
PICO's Population, Intervention, Comparison, Outcome and Studies

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12904-025-01698-2>.

Supplementary Material 1

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Author contributions

C.M. and D.G. submitted the protocol and analysed the literature. A.K. completed the first draft of the paper. All authors commented on drafts and offered revisions throughout the process.

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Data availability

No datasets were generated or analysed during the current study.

Declarations**Ethical approval**

N/A.

Consent for publication

N/A.

Competing interests

The authors declare no competing interests.

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