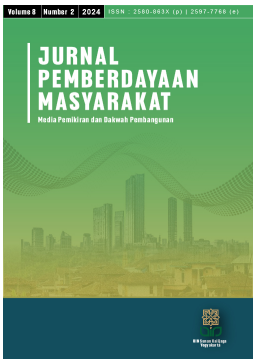

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Promoting UG-Technopark in Advancing Hospitality Studies: Challenges and Opportunities

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ABSTRACT

Gunadarma University' as one of the biggest private university in Indonesia has Technopark located in Cianjur, West Java, it is equipped with facilities such as glamping sites, a kitchen, meeting hall and a park featuring various herbs, spices, and plants, holds significant potential for enhancing hospitality studies. However, these resources are currently underutilized by students and faculty, limiting their effectiveness in advancing academic and practical learning. This study explores the challenges and opportunities of utilizing UG Technopark to enhance hospitality education. Using a qualitative approach, in-depth interviews were conducted with faculty members, students, and industry stakeholders, also observation to gather insights into the current limitations and potential areas for improvement. The findings highlight key challenges include geographical distance, limiting regular use by students and faculty. However, UG Technopark provides valuable hands-on experiences and opportunities for interdisciplinary collaboration. The findings highlight the potential for stronger university-industry partnerships, strategic curriculum alignment, and contributions to sustainable hospitality practices, benefiting both the university and the broader community.

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KEYWORDS
Technopark; hospitality education; academic; interdisciplinary learning; university-industry collaboration

Introduction

The Covid-19 pandemic has brought about significant changes across various aspects of life, it is also impacted the tourism and hospitality industry. It led to the need for multiskilling, professional development, increase hygiene and better crisis preparedness in the tourism and hospitality industry (Kaushal & Srivastava, 2021). It also changed travel behaviors with a focus on more sustainability and responsible tourism practices (Chang et al., 2020; Higgins-Desbiolles, 2020). In this context, the discovery and implementation of sustainable actions to protect the environment have become increasingly crucial.

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Despite the pandemic's chandelles, the pursuit of the United Nations' Sustainable Development Goals (SDGs) has gained renewed importance. The SDGs, with their 17 goals, aim to minimize poverty, protect the environment and promote peace and prosperity globally. They emphasize the need for a balanced approach to social, economic and environmental sustainability, recognizing the connection of various development areas (UNDP, 2023).

As the world transitions into a post-pandemic era, a new normal may emerge, but the commitment to achieving the SDGs remains. The Indonesian government's National Medium-Term Development Plan 2020-2024, as outlined by Bappenas (National Development Planning Board, 2019) continues to prioritize tourism development, infrastructure enhancement, human resources improvement and the expansion of tourism practices.

Moreover, Indonesian tourism made a significant contribution of 4.1 percent to the national GDP in 2023, as stated by Minister Sandiaga Uno (I Gusti Ayu Dewi Hendriyani, 2023). This substantial economic impact highlights tourism and hospitality's critical role in Indonesia's growth and underscores the necessity for effective educational and practical initiatives to sustain and enhance this vital sector.

The tourism sector in Indonesia significantly contributes to the national workforce, with the food and beverage industry for 39.75 percent, making it the secont-largest contributor and the accommodation services sector representing 4.29 percent, ranking fourth (Pariwisata et al., n.d.). This aligns with the facilities provided at the UG Technopark, which include skill development resources in both fields. By intregrating activities related to these industries, UG Technopark can substantially impact enhancing student quality, and support education, research and community service initiatives carried out by the academic community. This alignment not only addresses industry needs but also fosters a more practical and impactful educational experience, preparing students to meet the evolving demands of the hospitality sector.

Subsector	2018	2019	2020	2021
Provision of accommodation services for tourists	5,64	5,32	4,50	4,29
Provision of Food and Beverage Services	35,33	36,68	38,28	39,75
Provision of Rail Transportation Services for Passengers	0,16	0,20	0,25	0,16

Subsector	2018	2019	2020	2021
Provision of Land Transportation Services for Passengers	10,75	11,14	10,61	9,64
Provision of Water Transportation Services for Passengers	0,55	0,51	0,45	0,44
Provision of Air Transportation Services for Passengers	0,41	0,28	0,22	0,18
Vehicle Rental Services	0,45	0,41	0,24	0,30
Travel Agency and Other Reservation	0,69	0,59	0,34	0,29
Provision of Cultural Services	1,23	1,33	1,00	0,72
Provision of Sports and Recreational Services	1,55	1,46	1,14	1,01
Trade of Tourism Goods	41,51	40,18	41,36	41,75
Provision of Other Tourism Service	1,72	1,90	1,60	1,48
Total	100,00	100,00	100,00	100,00

Table 1. Percentage of Tourism Workforce by Tourism Subsector Year 2018 – 2021. *Source*: Kemenparekraf, Statistik Tenaga Kerja Parekraf 2018-2021 ((Pariwisata et al., n.d.)

Gunadarma University (UG), one of Indonesia's biggest higher education institutions, has demonstrated its commitment to excellence in education and research. As part of its efforts to contribute to sustainable development, UG has established the Gunadarma University Technopark (UGTP). UGTP is a dedicated Science and Technology Park that leverages self-developed technology to manage natural resources effectively. Spanning 60 hectares in Cianjur Regency, UGTP is more than just a technology demonstration site; it is a center for science and technology development supporting sustainable growth.

However, despite its potential, the Technopark's resources remain underutilized, particularly in advancing hospitality studies at UG. This research seeks to address this gap by exploring the challenge and opportunities associated with optimizing UGTP's

facilities for hospitality education. The study aims to answer the research question: How can UD Technopark be effectively utilized to enhance hospitality studies and benefit both the university and society? This study aims to develop strategic programs that align Technopark's resources with the educational and practical needs of hospitality students, thereby maximizing its impact on the university community and beyond.

The Concept of Technopark: An Overview

A Technopark, also known as a technology park, is a designated area designed to foster innovation and support the growth of a technology company. The park provides infrastructure, resources, and a conducive environment for startups and established firms to thrive, often with the support of government policies and academic institutions.

Technopark is an innovative educational project aimed at mastering modern scientific knowledge, methods of scientific and technical creativity, design, and research activities in high technology (Stymkovsky & Voloshin, 2015a). Technopark catalyze innovation and support strategic decisions for innovative technology collaboration by defining and validating association rules for success. (Duzdar et al., 2015a)

According to Jha & Mohapatra (2023)The technopark can create an enabling ecosystem for startups by offering economic facilities and support throughout the gestation period. It also provides essential infrastructure and support services to innovative companies, including business incubators, technology centers and various consulting services (Babkin et al., 2020; Jha & Mohapatra, 2023a; Shapranova & Barmashina, 2021)

Technopark contributes to regional economic development by creating jobs, attracting investements and increasing the competitiveness of the local economy (Babkin et al., 2020; BÖYÜKASLAN & ÖZKARA, 2022; Obid Khikmatullaev Tulkunovich, 2022). Radosevic & Myrzakhmet (2009) stated that Technopark firms are no more innovative than other firms and while they facilitate business incubation, they are less successful in promoting innovation and diversivication of the economy. Successful technoparks implement strategies that promote collaborative knowledge creation, enhancing organizational competitiveness and innovation (Duzdar et al., 2015b; Mariam et al., 2021).

Technopark often collaborate with educational institutions to enhance vocational training and promote scientific and technical creativity among students. (Bulgakova et al., 2021a; Stymkovsky & Voloshin, 2015b). It serves as a platform for university-university collaboration, facilitating the transfer of knowledge and technology (BÖYÜKASLAN & ÖZKARA, 2022). Olcay & Bulu (2016) stated that Technoparks and Technology Transfer Offices (TTOs) within universities enhance knowledge spillover and create new start-up firms, contributing to a city's innovation potential.

Technopark and the Higher Education Sector

Educational technoparks are innovatiove spaces within educational institutions designed to foster the development of scientific, technical, and entrepreneurial skills among students. These technoparks aim to bridge the gap between theoretical knowledge and practical application, enhancing student's readiness for the professional world and contributing to regional socio-economic development.

Technoparks in higher educatiobal institutions stimulate innovative activities and can influence regional socio-economic development (Bulgakova et al., 2021; Romanovich et al., 2018)

Various models of technoparks exist globally, including Ameican, European, Japanese, mixed and Russian models, each with unique features and developmental prospects. Educational technoparks can significantly influence student's motivation to study school disciplines, social engagement and social responsibility. (Luferenko & Romm, 2021). Integrating technoparks into higher education institutions can lead to benefits for firms, universities, academicians, and countries, especially in the education of engineering programs. (Gümüş et al., 2013)

Research has shown that technoparks support the digital transformation of education by providing modern equipment and methods, crucial for training "digital" engineers and facilitating early career guidance (Gaivoronskii et al., 2017). Online course and project activities within technoparks enhance student's technical skills and project management capabilities (Klevetova et al., 2023). PRIHODKOV et al. (2020) stated that the cooperation between technical universities and children's technoparks, through the implementation of the "Autoquantum" general development education program, has shown positive results in promoting higher professional education and enhancing general education opportunities. Organizing corporate governance within a local network of educational departments and its technopark can improve the efficiency of higher education institutions and their technoparks. (Mamedov et al., 2020)

Partnership between educational institutions and industries through technoparks promote collaborative knowledge creation, enhancing organizational competitiveness and innovations (Mariam et al., 2021). Technoparks plays a role in the socialization of students, particularly in rural areas, by providing access to advanced educational resources and fostering scientific communities (Almurzaeva et al., 2017).

Technopark in the Context of Hospitality and Tourism Studies

The application of technoparks in hospitality and tourism studies is a relatively new area of exploration. While technoparks have been associated with science and technology fields, there is growing interest in extending this model of service-oriented disciplines such as hospitality and tourism.

Hospitality studies, which focus on managing hotels, restaurants and tourism services can benefit from technoparks by leveraging technology and innovation to

address industry challenges and enhance service delivery. Ozdemir et al. (2023), stated that digitalization in the hospitality and tourism industry offers various opportunities for all stakeholders to benefit from existing and emerging applications, creating value propositions for various stakeholders.

According to the research by (Law et al., 2014, 2020), there has been a significant progression in the volume and variety of ICT research in hospitality and tourism, highlighting the industry's wide adoption of technology for various application. The innovation itself, is crucial for business and regional competitiveness in the hospitality and tourism sector. Technological advancements such as machine learning, artificial intelligence and smart environments are transforming industry structures and practices. (Buhalis et al., 2019; Gomezelj, 2016; Parvez, 2021). Emerging technologies can fulfill accessible hospitality and tourism services for people with disabilities, requiring more interconnected global collaborations (Tlili et al., 2021).

As stated by (Law et al., 2020b) that there has been a significant increase in the volume and variety of Information AND Communication Technologies (ICT) research in hospitality and tourism, highlighting the growing importance of technology in this field. Despite the progress, there are still knowledge gaps that need to be addressed, suggesting a need for continued research to fully leverage ICT in hospitality and tourism.

Albizzia et al. (2022) stated that sustainable tourism development in Mina Wisata Technopark Sleman requires active community participation and bottom-up planning, involving all stakeholders for optimal results. Kuntias et al. (2023) also said in thestudies about the role of technopark in local economic development in Samosir Regency that it can support local economic development there, but collaboration and multi stakeholder synergy are crucial for success

Technoparks play a vital role in the hospitality and tourism industry by fostering technological innovation and adoption. The integration of advanced technologies such as ICT, machine learning and AI significantly enhances service delivery, customer experience and operational efficiency. As the industry continues to evolve, the role of technoparks in driving innovation and addressing emerging challenges will become increasingly important.

Previous Research on Technoparks

According to research of (Buhalis et al., 2019), University technoparks can generate innovative ideas and support student start-ups, enhancing educational efficiency and promoting commercialization of student project solution. It also can bridge the gap between academic knowledge and practical business skills, fostering student startups and continuous skills development for teaching staff (A. Kapyrin et al., 2021a)

A research has shown that Technopark program at SMK Negeri 3 Malang can be effective in increasing the number of entrepreneurs and improving the quality of the

workforce. (Aprilia et al., 2021a). As mentioned by (A. Kapyrin et al., 2021b) the technopark at the university can generate student's innovative ideas and establish small start up enterprises, boosting educational establishment efficiency and commercialization.

Human knowledge, service and robotics applications are the most significant factors influencing automation and AI implementation in the hospitality and tourism industry. (Jabeen et al., 2022). Technopark in Thiruvananthapuram, which is one of the largest technological parks in the world is transforming the entrepreneurial landscape in Kerala by providing affordable facilities and support for start-ups in the IT/ITeS sectors. (Jha & Mohapatra, 2023)

Technopark based on higher educational institutional in Rusia effectively stimulate innovative activity and positively influence socio-economic development in regions. (Romanovich et al., 2018).

Solo Technoparks which is owned by Surakarta Government, it served as training center for youth in Central Java, Indonesua can be effective in improving knowledge and basic skills, but need to improve alumni networking and collaboration with industries to increase employability rates. (Sudiyatno & Wulandari, 2020) . The technoparks also can serve as a training center for innovative forms of education in the higher educational institutions (Bulgakova et al., 2021b).

Key success factors include organizational structure, strategy, knowledge management and strong relational networks between universities and industries (Pertuz et al., 2021; Schofield, 2013; Sjöö & Hellström, 2019), also integration, commitment and trust, with integration being the most important factor (Rosendo Rios et al., 2016). Adequate resources, including funding, infrastructure, and human capital, are essential for the success of university-industry collaborations within technoparks (Sjöö & Hellström, 2019). As stated by Barnes et al. (2002), a good practice model for successful university-industry research collaborations can increase the probability of collaboration being perceived as successful by both academic and industrial partner. In software requires factors such as innovation, industrial relevance and a strong commitment to research (Wohlin et al., 2012). Technopark growth in Turkey is influenced by distance from associated university, park age and university research quality. (Unsal, 2019)

By adopting these researches, technoparks can enhance the role for research, innovation and economic development.

Challenges in Researching Technoparks in Non-Technological Fields

While the benefits of technoparks are well documented in technology fields, their application in non-technological fields field like hospitality studies presents unique challenges. One major challenge is lack of a clear framework for integrating technoparks into service-oriented education and research. Unlike fields such as engineering or information technology, where the focus is on product development and

commercialization, hospitality studies often emphasize service quality, costumer experience and operational efficiency.

According to (Oborin, 2022), another challenge in Russia is, that it requires state participation, public-private partnerships, and new management models to align academic research with industry needs. Where the academic-industry partnership faces cultural, marketing and budgetary challenges, but overcoming these challenges can lead to more rapid innovation and diversified revenue for academic research labs. (Seeley et al., 2019)

Overcoming this challenge requires a nuanced understanding of the hospitality industry and the development of research agendas that address both academic and industry priorities

Methods

This study uses a qualitative approach with phenomenological method to explore the experiences of UG Technopark users. This provides a theoretical tool for educational research as it allows researchers to engage in flexible activities that can describe and help to understand complex phenomena, such as various aspects of human social experience (Alhazmi & Kaufmann, 2022).

Data Collection

Data is gathered through interviews and observations, focusing on three groups:

1. Faculty members: to understand how UG Technopark support teaching and research
2. Students and Alumnae: To capture their experiences in using technopark resources
3. Industry partners: to assess their perspective on the collaboration with students and graduates.

Semi-structured interview is perceived to enable researchers to track the studies while being flexible and adaptable to ask questions to their interviewees (Mashuri et al., n.d.) Observation implies a way of collecting data through observing (Marshall & Rossman in Alenezi, 2020)

Data Analysis

Using Colaizzi's Method (Praveena K.R & Sasikumar S, 2021), data analysis involves transcribing interviews, identifying significant statements, clustering themes, integration of the findings, describing and validating the findings from the study participants.

This method allows for an exploration of how UG Technopark influences hospitality studies through direct feedback from key stakeholders.

Results

Utilization Challenges of UG Technopark

According to the data, it's found that there is high enthusiasm for leveraging UG Technopark within hospitality education, its full potential is not yet realized due to its distance from the main campus. The geographical separation poses a logistical barrier, impacting the frequency and ease of access for both students and faculty. A faculty member said "The distance from the main campus restrict regular usage, making it challenging to fully integrate Technopark's facilities into our daily academic routines."

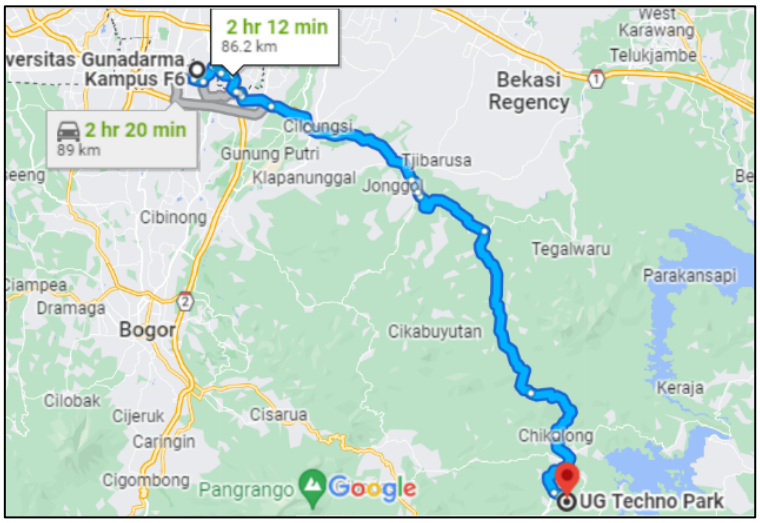

Figure 1. Map from Main Campus of Hospitality Pro-gram to UG Technopark. *Source*: Google Map

At UG Technopark, Hospitality students have had the opportunity to work on various practical projects, applying their theoretical knowledge in an immersive environment. For example, students have participated in community outreach activities, where they demonstrated their culinary and hospitality management skills to the public. These outreach activities not only strengthened their practical skills but also developed engagement between the university and the local community.

Figure 2: Cooking Demo by Lecturer and Students to Local Communities. *Source*: Student Documentation.

Additionally, the technopark provides collaborative platform where hospitality students work alongside students from other disciplines such as Agrotechnology. This collaboration encourages interdisciplinary learning and innovation. By utilizing local food planted in the area of UG Technopark, which is being taken care by the Agrotechnology students, student of Hospitality studies was able to show case how locally sourced ingredients can enhance the quality and uniqueness of dishes in the hospitality industry.

Opportunities for Enhanced Learning Experiences

Despite these challenges, interviews indicated a strong consensus on the potential of UG Technopark to significantly enhance hospitality education by providing a realistic learning environment. Faculty and industry professionals suggested that with better planning and transportation solutions, the technopark could become an invaluable extension of the classroom. If we could streamline access, UG Technopark would be an ideal ground for applied learning, where students can engage directly with real-world hospitality settings, one industry professional explained.

Strategic Alignment with Educational Goals

Respondents from Faculty member agreed that there is an opportunity to develop strategic programs that utilize UG Technopark's resources more effectively. Suggestions included structured integration of Technopark activities into the curriculum, such as mandatory projects or internships conducted at the Technopark, which would ensure

regular student engagement, Incorporating Technopark activities into course credits could motivate more consistent student participation, a Faculty Member suggested.

Contribution to Society and The Industry

The research explores how effectively utilizing UG Technopark could benefit not just the university but also the broader community and hospitality industry. Participants highlighted that through projects focused on sustainability and innovative hospitality solutions, students could contribute to the industry's advancement while also adhering to the Sustainable Development Goals (SDGs). UG Technopark could serve as a hub for innovation in sustainability hospitality practices, benefiting the industry at large and fostering a culture of responsibility among students, remarked an industry informant.

Potential for University-Industry Collaboration

The findings emphasize the potential of UG Technopark to facilitate stronger collaboration between the university and hospitality businesses. This collaboration could lead to enhanced educational outcomes through industry-led workshops, guest lectures, and real-time projects. Such partnership could provide students with insights into current industry practices and challenges, enriching their learning and preparing them for future careers, as stated by a student informant

Discussion

The Role of Technoparks in Education and Innovation

The research results align with the theoretical framework that emphasizes the role of technopark in hospitality studies, especially related to its innovation and entrepreneurship within educational institutions. Establishing university technoparks can generate students' innovative ideas and help establish small start-up enterprises, bridging the gap between academic knowledge and practical business application (A. Kapyrin et al., 2021c)This is evident at UG-Technopark, where hospitality students engage in hands-on projects, applying their theoretical knowledge in real-world scenarios, such as community outreach and collaboration with other study program students in Gunadarma University. This interdisciplinary approach mirrors the collaborative, innovation-driven environment described by previous studies on technopark.

However, unlike technoparks in science and technology sectors, where the focus is on product development and commercialization, the hospitality industry emphasizes service quality, customer experience, innovation of culinary products and operational efficiency. This presents a unique challenge In adapting the technopark model to service-oriented fields like hospitality studies. The integration of technology development and research-intensive activities, as highlighted by Link, et.al (2018), plays

a vital role in enhancing operational efficiency in hospitality, yet the UG technopark's potential in fully leveraging advanced technologies like AI and machine learning remains untapped, partly due to logistical and infrastructure barriers. Lelo de Larrea et al. (2021) identified potential future research avenues in hospitality and tourism, including exploring innovation as systemic turbulence, commercializing idle innovations and examining corporate governance's effect on innovation.

Challenges in Access and Utilization

One of the significant challenges highlighted by the research is the geographical separation between the main campus and the UG Technopark, which impacts the frequency of student and faculty engagement with the technopark's facilities. This issue contrasts with the theoretical framework that suggests technoparks are designed to provide easy access to essential resources and infrastructure (Jha & Mohapatra, 2023c). The logistical difficulties in accessing UG Technopark prevent its full integration into the academic routines of hospitality students, thus limiting its impact compared to other technoparks that are more seamlessly connected to their academic environment.

Opportunities for Hospitality Studies in Technopark

Despite these challenges, this research reveals significant opportunities for enhancing hospitality education through UG Technopark. The immersive environment provided by the Technopark allows students to develop practical skill that are critical for the hospitality industry. This supports the findings of Aprilia et al. (2021b), who argue that Technoparks can increase the number of entrepreneurs and improve workforce quality.

Moreover, the potential for university-industry collaboration, as outlined in the theoretical background (Mariam et al., 2021), is echoed in the study's findings. The UG Technopark offers opportunities for industry-led workshops, guest lectures, and collaborative projects that can provide hospitality students with valuable insights into current industry practices. This aligns with the theoretical emphasis on collaboration between academia and industry, promoting innovation and improving educational outcomes (Shapranova & Barmashina, 2021)

Strategic Alignment with Educational Goals

The research findings suggest that strategic alignment between UG Technopark's resources and the curriculum could enhance the learning experience for hospitality students. The suggestion to integrate technopark activities into course credits or mandatory projects resonates with the theoretical understanding of technoparks as spaces that facilitate applied learning (Luferenko & Romm, 2021). By doing so, UG Technopark can play a more central role in the academic experience of hospitality students, ensuring consistent engagement and skill development.

Conclusion

This research highlights the significant potential of UG Technopark to enhance hospitality education by providing a realistic and collaborative learning environment. However, a major challenge remains the geographical separation from the main campus, which has hindered the full utilization of Technopark's facilities. Despite this, the research reveals considerable opportunities for strengthening university-industry collaboration and strategically integrating Technopark activities into the curriculum. By doing so, it is expected that students will have more consistent engagement in practical learning experiences, bridging the gap between academic knowledge and industry demands.

For future research, it is recommended to explore cross-disciplinary collaborations between hospitality students and other fields, such as Agrotechnology, Economics, etc to uncover innovative approaches to hospitality education. Future research could also examine how advanced technologies like AI and Machine Learning can be incorporated into Technopark activities to enhance the student's learning experiences about operational efficiency and customer experience in the hospitality industries.

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Author's declaration

We are Armaini Akhirson (A1) and Murni Setyawati (A2), confirm that we have prepared, written, read, and approved this manuscript for submission. All sources are acknowledged, and quotes are properly cited based on our research. A1 designed the research and developed the theoretical framework, while A2 provided empirical data. Together, we categorized the results. A1 handled data analysis and wrote the initial draft, and both of us contributed to the final manuscript. We discussed, reviewed, and approved the final version. Write the contribution of each author here, or mark the following column.

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Availability of data and materials

All data are available from the authors.

Competing interests

The authors declare no competing interest.

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