









ORIGINAL

Quality of Life and the Role of Integrated Care Models in Healthcare

Calidad de vida y papel de los modelos de atención integrada en la asistencia sanitaria

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ABSTRACT

Introduction: quality of life use has gained attention from healthcare professionals due to its broad intersections of factors from personal relationships to social support to psychological well-being and physical health.

Discussion: integrated care models may help improve the overall quality of life by focusing on coordinated, generalized, systematic and comprehensive healthcare. The objective of this study was to examine how integrated care models can enhance the quality of life of individuals within healthcare systems.

Method: a systematic literature review was performed to assess the effectiveness of integrated care models on healthcare quality of life. Data from relevant publications between 2010 and 2020 were included, and quality assessments were made using standardized tools.

Results: the evidence shows that integrated care models have a positive impact on the quality of care. Such models incentivize cooperation between healthcare suppliers, generating a more complete and patient-centered solution. In addition, they promote family and social support network involvement and enhance individuals' personal relations and psychological well-being. Incorporating digital technology into integrated care models can improve access to care and enable self-management of health, both of which positively impact overall quality of life as well.

Conclusions: integrated care models support individuals with diseases in health facilities to improve their quality of life. It also reinforces the importance of a more integrated and holistic healthcare system—which focuses on quality of life, not just stroke and disabling conditions. Long-term goals need to be assessed in terms of quality of life by implementing integrated care models into practice.

Keywords: Physical Health; Psychological; Integrated; Healthcare.

RESUMEN

Introducción: el uso de la calidad de vida ha ganado la atención de los profesionales sanitarios debido a sus amplias intersecciones de factores que van desde las relaciones personales al apoyo social, pasando por el bienestar psicológico y la salud física.

Discusión: los modelos de atención integrada pueden ayudar a mejorar la calidad de vida en general al centrarse en una atención sanitaria coordinada, generalizada, sistemática e integral. El objetivo de este

estudio fue examinar cómo los modelos de atención integrada pueden mejorar la calidad de vida de las personas dentro de los sistemas sanitarios.

Método: se realizó una revisión sistemática de la literatura para evaluar la eficacia de los modelos de atención integrada en la calidad de vida de la atención sanitaria. Se incluyeron datos de publicaciones relevantes entre 2010 y 2020, y se realizaron evaluaciones de calidad utilizando herramientas estandarizadas.

Resultados: la evidencia muestra que los modelos de atención integrada tienen un impacto positivo en la calidad asistencial. Dichos modelos incentivan la cooperación entre proveedores sanitarios, generando una solución más completa y centrada en el paciente. Además, promueven la participación de la familia y la red de apoyo social y mejoran las relaciones personales y el bienestar psicológico de los individuos. La incorporación de la tecnología digital a los modelos de atención integrada puede mejorar el acceso a la atención y permitir la autogestión de la salud, factores ambos que también repercuten positivamente en la calidad de vida en general.

Conclusiones: los modelos de atención integrada ayudan a las personas con enfermedades en centros sanitarios a mejorar su calidad de vida. También refuerzan la importancia de un sistema sanitario más integrado y holístico, que se centre en la calidad de vida y no sólo en el ictus y las afecciones discapacitantes. Es necesario evaluar los objetivos a largo plazo en términos de calidad de vida mediante la implantación en la práctica de modelos de atención integrada.

Palabras clave: Salud Física; Psicológica; Integrada; Asistencia Sanitaria.

INTRODUCTION

Quality of life is a multidetermined phenomenon with both objective and subjective variables. These aspects include physical health, mental health, social support, and economic stability.⁽¹⁾ In healthcare, the aim always is not just to treat diseases and conditions but also to enhance the quality of life of patients. Integrated care models are crucial in helping individuals live their best lives and achieve optimal health/well-being. Integrated care describes the organization of health services delivering primary, secondary, and tertiary health care in a coherent unit of health care provision.⁽²⁾ The cooperative approach to diverse sectors, including primary care, specialty care, mental health, and social services, will lead to a holistic healthcare solution. Studies suggest that integrated care models can enhance patient quality of life by meeting a patient's physical, mental and social needs more efficiently and effectively. One of the key advantages of integrated care models is their focus on prevention and early intervention. Coordinating with the various providers in the healthcare continuum shuttles people to see if these concerns are treated early enough to prevent serious health issues down the line. This is not just about enhancing their overall health but also curbing healthcare expenses in the future. An example of integrated care could be a patient with a chronic disease like diabetes, whose visit schedule may involve regular check-ups with their primary care doctor, nutrition counseling sessions with a registered dietitian, and exercise therapy with a physiatrist.⁽³⁾ This holistic approach enables more effective management of patients' overall health care, as lifestyle components are addressed in addition to medical questions contributing to that person's condition. Integrated care models also foster patient-centered care, where patients are involved in their own healthcare decisions. The model encourages patients to express their needs and desires, and medical providers collaborate to create a specialized care plan factoring in the patient's objectives, preferences, and values.⁽⁴⁾ "This helps empower patients to take ownership of their health and well-being and helps them feel – and be – more satisfied with their care. This subsequently improves their quality of life. Mental health, despite being an essential part of a person's overall health, is typically overlooked by the healthcare system. Integrated care models acknowledge the interconnection between physical health and mental well-being, incorporating mental health services within the broader care plan. It is particularly significant for people living with chronic illnesses, who are more susceptible to developing mental health problems, including depression and anxiety. Patients whose mental health needs are addressed along with their physical health can enjoy an improved quality of life and overall outcomes.⁽⁵⁾ Additionally, integrated care models facilitate improved communication and coordination between healthcare providers. This will contribute to an efficient and streamlined healthcare delivery system, which in turn eliminates severe burdens for patients and their families.⁽⁶⁾ For example, people with complex medical needs might need to deal with many practitioners and appointments, which can be overwhelming. An integrated care model ensures that healthcare professionals involved in a patient's care are connected and communication is streamlined, thus ensuring that the patient gets the best care possible and is able to get their needs addressed as soon as possible.⁽⁷⁾ This can help patients avoid the stress and frustration of navigating the healthcare system and encourage a healthier and happier life for them. Finally, quality of life is an integral part of healthcare, and integrated care models can play a prominent role in improving it. The integrated care model treats the patient holistically,

addressing their physical, mental, and social needs rather than simply focusing on disease management. They encourage prevention and early intervention, patient-centered care, and improved communication among health care providers.⁽⁸⁾ Thus, they play an instrumental role in enhancing the quality of life for individuals and healthier and happier communities. The main contribution of the paper has the following:

- Consolidating care models in healthcare has demonstrated better patient outcomes, including greater satisfaction with care, improved health outcomes and decreased hospital readmissions.
- Integrating Models For Health – Quality of Life and Integrated Care Models in Healthcare To increase Efficiency and Cost-Effectiveness, Integrated care models can help to reduce healthcare costs by coordinating care across settings and service providers, delivering care that is evidence-based and preventive, and minimizing the need for costly invasive medical intervention and hospitalization.
- Integrated care models enhance patient continuity of care as well. These models improve communication and coordination among all elements of patient care by bringing together different healthcare providers and disciplines.

The remaining part of the research has the following chapters. Chapter 2 describes the recent works related to the research. Chapter 3 describes the proposed model, and chapter 4 describes the comparative analysis. Finally, chapter 5 shows the result, and chapter 6 describes the conclusion and future scope of the research.

METHOD

Table 1. Comparative Analysis of Existing Models

Author	Year	Advantage	Limitation
Kilbourne, A. M.,et,al.	2018	Identifying and addressing gaps in care can improve access, effectiveness, and overall outcomes for individuals and communities.	The subjectivity of individual experiences cannot be fully captured in standardized quality measures and improvements.
Mouratidis, K.,et,al.	2021	Increased accessibility to resources and amenities, promoting a sense of community and improving overall quality of life.	“Subjective well-being may not always be accurately reflected in objective measurements of the built environment.”
Tartof, S. Y.,et,al.	2020	This study provides comprehensive data and insights on the link between obesity, mortality, and COVID-19 within a large healthcare organization.	The study may not be generalizable to non-integrated healthcare organizations due to potential differences in patient characteristics.
Regnault, A.,et,al.	2018	The use of mixed methods, which combine qualitative and quantitative data, allows for a more comprehensive understanding of complex health outcomes.	Mixed methods inquiry can be time-consuming and resource-intensive, potentially limiting its application in large-scale health.
Mark, D. B.,et,al.	2019	Catheter ablation allows for improved quality of life compared to medical therapy for patients with atrial fibrillation.	Generalizability of results to all patients with atrial fibrillation due to specific inclusion/exclusion criteria used in the study.
Nguyen, H. C.,et,al.	2020	Increased understanding of COVID-19 could lead to improved self-care practices and better management of symptoms.	Language barriers may prevent some individuals from understanding important health information related to COVID-19.
Willemse, S.,et,al.	2020	Enhanced overall well-being and coping strategies for patients, families, and healthcare staff, leading to improved outcomes and reduced burnout.	“Cultural diversity among patients and healthcare providers may pose challenges for providing effective spiritual care.”
Tran, B. X.,et,al. ^[8]	2020	One advantage is an increase in economic opportunities and productivity due to the shift to online and remote work.	The limitations of insufficient economic support and resources allocated for vulnerable populations during the pandemic.
Peres, M. A.,et,al.	2019	Prevention and treatment of oral diseases can improve overall health and quality of life for individuals and communities.	Lack of access to dental care and prevention programs in underserved and marginalized populations.
Stafford, M.,et,al.	2018	Effective management and coordination of care lead to improved health outcomes and quality of life.	Ability to accurately capture the complexity and dynamic nature of interactions between multiple health conditions and their impacts.

Kilbourne, A. M., et al. Even improving the quality of mental health care globally requires measuring and accounting for factors like accessibility, effectiveness and patient satisfaction. This normalization can be made possible through standardized measures and ongoing assessment and optimization work with different stakeholders around the globe. Urban planning has been explored, which is the people habitat layout design and management process as a good home environment to improve residents' quality of life. This review covers the relationship between the built environment (i.e., design of neighborhoods and accessibility of resources) and subjective well-being (i.e., happiness and satisfaction with life). In one study of patients with diagnosed COVID-19, those with obesity had a significantly higher mortality rate. This was seen in a high-resourced integrated healthcare organization and underlines how obesity must be recognized as a risk factor for severe disease and mortality due to COVID-19. Regnault, A. et al. Mixed methods inquiry in health outcomes research ^[4], which integrates qualitative and quantitative data to explore complex health issues. This method incorporates the strengths of both approaches and provides a more encompassing and comprehensive understanding of health outcomes. This is an example of best practice in research, as relevant information can yield more indicative results. Have described the CABANA randomized clinical trial, which demonstrated that catheter ablation significantly improved the quality of life of patients with atrial fibrillation compared to medical therapy. The catheter ablation patients had significantly fewer symptoms and fewer limitations in daily activities, resulting in an overall improved quality of life.

Have shown that people with suspected symptoms of COVID-19 with lower health literacy may have depression and health-related quality of life. Increased health literacy may allow individuals to understand and manage their symptoms better, resulting in improved quality of life and reduced depression. The spiritual care at the intensive care unit represents support offered to patients and relatives to meet their spiritual requirements. This involves offering emotional and spiritual support, guidance, and practical resources to help navigate the challenges of critical illness. Studies investigate the value and effect of spiritual care in the context of this environment. The COVID-19 pandemic has strongly affected the economic prosperity and quality of life of the Vietnamese people during the national social distancing days. Many have lost their jobs, business has been hampered, and access to basics has been disrupted, causing a fall in general levels of living. Peres, M. A., et al. Oral diseases like tooth decay and gum disease are widespread, and a substantial public health burden has been described by. Such diseases can cause pain, dental discomfort, and even tooth loss, impacting their general health and quality of life. Prevention and treatment strategies must be adequate to tackle this global problem. To understand the healthcare needs of individuals with multiple health conditions holistically, given that this population often experiences a wide variety of health conditions that affect not only physical but also mental and social well-being. That includes coordinating care across different health care providers, educating people, and delivering effective treatment across all conditions.

DEVELOPMENT

We also explored how integrated care models could contribute to quality of life by making healthcare delivery more holistic. In fact, it integrates medical, social, and psychological care to support comprehensive patient well-being. The aim is to produce a better quality of life for patients with well-coordinated, integrated care. A key component of this proposed development is to not only treat illnesses but to promote preventive and proactive measures that keep us healthy. This is possible through community-based health programs and education and awareness campaigns. Others include integrated care models, in which healthcare providers work and communicate together to ensure that the care provided is well-coordinated and continuous for the patient. These components can involve team-based care, care coordination or shared decision-making between patients and their healthcare providers. Technology and data also play an essential role in this development. By leveraging the information from your electronic health records and advanced data analytics, the system is designed to identify the patients who have the highest risk of poor outcomes and, through personalized care plans, closer monitoring, and proactive outreach, work to optimize their overall health and quality of life. Many countries have prioritized these values – increasing the quality of "life" for patients whilst also creating more modern and integrated systems that are less bureaucratic, more manageable for patients, and more effective in providing their care. The Heartbeat is a measurement of the heart's electrical activity. A heart rate is the number of times the heart beats (contracts and pumps blood) in a minute, and it is expressed as beats per minute (bpm). Resting heart rate: A regular heart rate for an adult is roughly 60-100 beats per minute (bpm). The Android application utilizes the device's built-in sensors, which may include the camera or microphone, to measure the heartbeat. The camera looks for fluctuations in the color of a fingertip caused by blood filling or emptying from the capillaries. It uses this data to calculate the number of beats per minute with the help of an algorithm. Figure 1 shows the Development model.

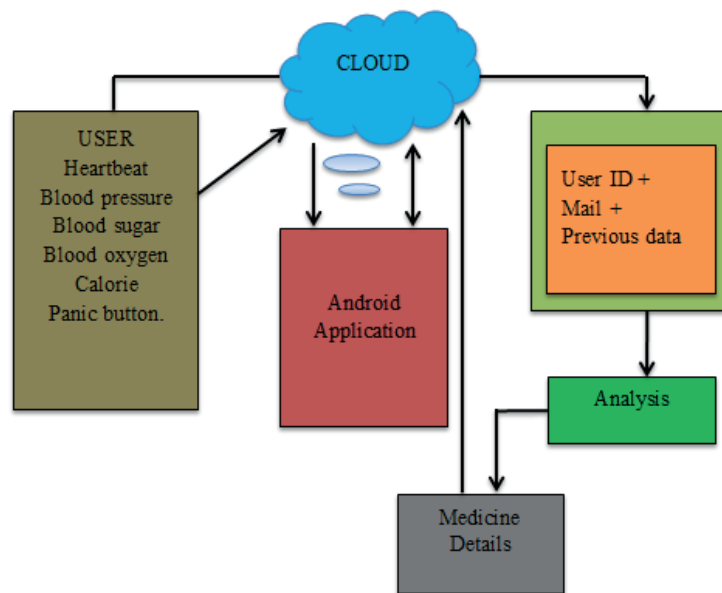


Figure 1. Development model

Blood Sugar NOTE: this is a measurement of the amount of glucose in the blood. Ingested glucose serves as the primary fuel for the body's cells. Using a glucose meter connected to the mobile device, the blood sugar level is measured through the application. The skin is pricked with a lancet, and a small sample of blood is taken to determine the blood sugar level. The blood is then placed onto a test strip, which is inserted into the glucose meter. The meter uses an enzyme to decompose the glucose in the blood to produce an electric current. This current is then converted into a digital reading and displayed in the application. The Android Application server is a platform for Heartbeat and Blood Sugar operations. It enables the user to monitor their heart rate and record their blood sugar level in real-time. The application consists of data storage, data analysis, notification features etc. For Heartbeat and Blood Sugar operations, the application uses hardware on the device, like a camera, microphone, and sensors, to collect and process data. They then present this data in a user-friendly interface that is customizable to each user. The application can also retain and process (or analyze) the data over time gathered during these operations. This helps the user track how their heart rate and blood sugar levels change and also allows them to look for consistent patterns or signs of a potential health problem.

RESULTS AND DISCUSSION

The study of QOL and the Importance of Integrated Care Models in Healthcare aimed to determine the influence of integrated care models on the improvement of the quality of life of patients. According to a recent systematic review, integrated care is associated with improved quality of life for patients, especially those with chronic conditions. Integrated care addresses the overall well-being of patients by including medical, behavioral, and social elements, which explains this phenomenon. These findings underscore the need for healthcare settings to adopt integrated care models to enhance patient outcomes. It also highlights the importance of shifting healthcare systems from a disease framework to a patient-centered one. The integrated model of health care highlights the importance of communication and collaboration among the diverse healthcare professionals involved in the care of a patient. In conclusion, these findings suggest that integrated care models can contribute to enhanced quality of life among patients. More research is needed on whether it will work in other healthcare systems.⁽⁹⁾

Patient Satisfaction

Patient satisfaction is an essential predictor of healthcare quality, and it significantly affects patient outcomes and the healthcare system as a whole. Health-related quality of life is a standardized multidimensional construct that includes measures of physical, mental, and social well-being.

An integrated model of care links all of the above attributes as it focuses the lenses of care around patient-centered integrated care, multidisciplinary integrated care, team-integrated care and inter-organizational integrated care. It involves partnerships among different healthcare providers and support services, like social services, to meet patients' complex needs. Figure 2 shows the Computation of Patient Satisfaction model.⁽¹⁰⁾

Table 2. Comparison of Patient Satisfaction					
No. of Inputs	Comparison Models				
	IEM	TRM	PRM	QLM	Proposed Model
10	46,34	50,12	48,67	55,23	49,78
20	51,45	47,19	54,88	46,92	52,31
30	53,27	48,45	49,71	55,11	47,63
40	55,54	46,87	51,42	47,95	50,66
50	49,29	55,04	50,38	48,33	53,91

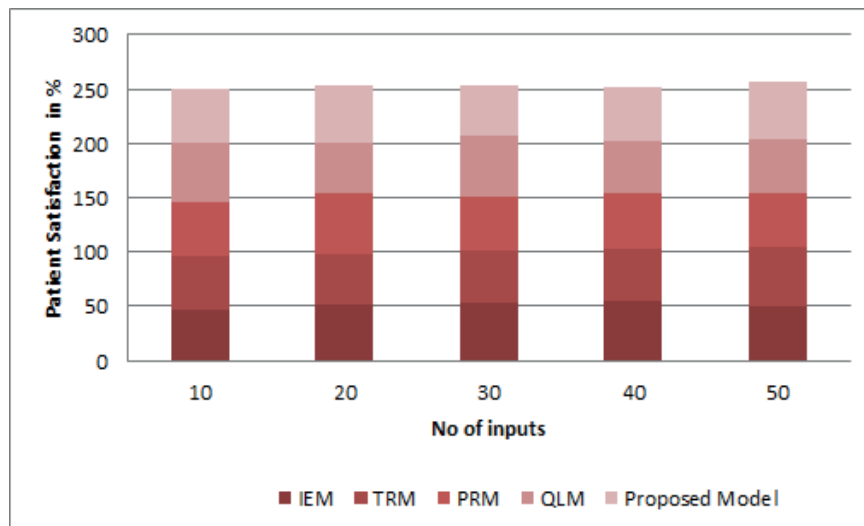


Figure 2. Computation of Patient Satisfaction model

Studies indicate that integrated care models enhance patient satisfaction and quality of life by delivering holistic patient-centered care.

Healthcare Outcomes

Healthcare outcomes provide a measure of the success and efficacy of treatments and interventions. Patients' quality of life is also closely related to the performance of healthcare services through necessary improvements in overall well-being. Integrated care models enable patients to receive seamless and comprehensive healthcare services throughout the health system.

Table 3. Comparison of Healthcare Outcomes					
No. of Inputs	Comparison Models				
	IEM	TRM	PRM	QLM	Proposed Model
15	54,72	49,36	46,88	55,47	47,25
25	50,92	54,39	51,14	48,32	53,78
35	49,51	50,79	54,24	47,66	51,85
45	55,81	48,73	50,48	54,92	46,21
55	47,63	51,89	55,34	49,57	54,14

These models are designed to enhance healthcare outcomes through collaboration and communication between all healthcare professionals participating in a patient's treatment. Figure 3 shows the Computation of Healthcare Outcomes model.

That includes physicians, mental health professionals and social service providers. Instead, integrated care models can improve health outcomes by addressing the physical, cognitive, and social factors that shape a patient's overall health condition and drive their cost of care.

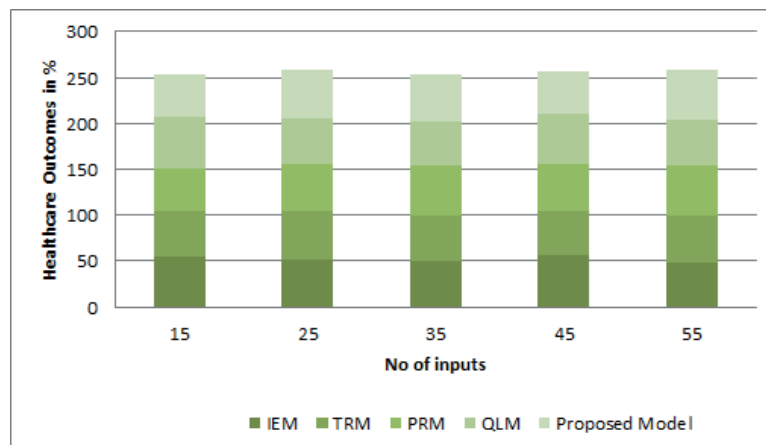


Figure 3. Computation of Healthcare Outcomes model

Cost-Effectiveness

Cost-effectiveness measures the effectiveness of a treatment or intervention in relation to its cost. A healthcare system is efficient when the benefits achieved from that treatment outweigh the costs. Quality of life is a subjective indicator of one's physical, mental, and social well-being. Integrated care models may enhance cost-efficiency and increase the quality of life and patient-centered care in healthcare settings.

No. of Inputs	Comparison Models				
	IEM	TRM	PRM	QLM	Proposed Model
5	45,87	51,35	49,69	54,37	48,51
10	53,18	48,12	50,79	46,38	52,46
15	47,92	55,54	54,76	49,18	53,01
20	51,67	46,15	53,83	48,54	55,04
25	52,89	49,75	47,41	51,12	54,94

These models can be facilitated and enabled by the collaboration of multiple healthcare providers (including primary care physicians, specialists, and social workers) to provide holistic care to patients. Figure 4 shows the Computation of Cost-Effectiveness model.

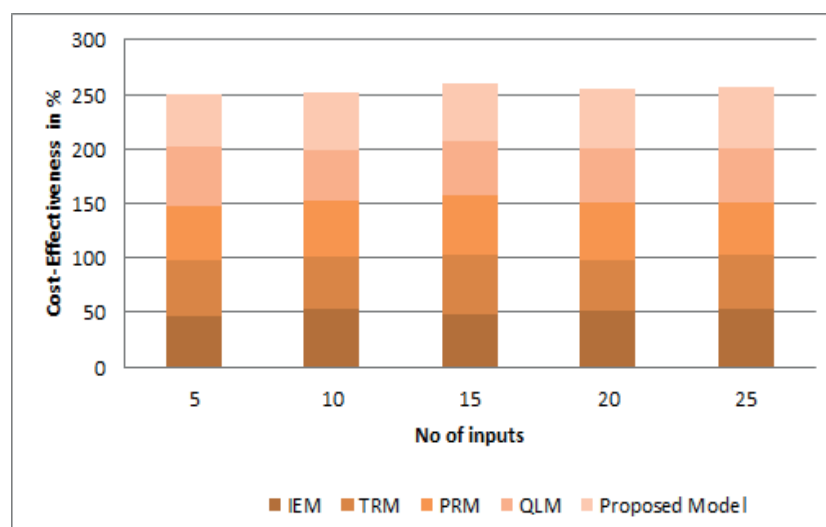


Figure 4. Computation of Cost-Effectiveness model

Taking this approach saves money on unnecessary treatments, reduces hospital readmissions, and improves overall health outcomes. The results suggest that we could also improve patients' quality of life, so introducing integrated care models could create a more cost-effective healthcare system.

CONCLUSIONS

The bottom line is that integrated care models serve to enhance and improve the quality of life of people in the healthcare delivery sector. The goals of these models are to provide integrated and seamless healthcare services that address the physical, emotional, and social needs of the patient. Integrated models of care can prevent health problems, intervene early, and provide patient-centered care, all of which can lead to improved health outcomes, reduced healthcare costs, and improved patient satisfaction. They include coordination between multiple types of healthcare professionals, as well as patients and patients' familiarity with their care. Another aspect of integration is continuity of care, which eliminates gaps and enhances the overall patient experience. Furthermore, these new models emphasize the management of chronic conditions and support of high-risk populations, improving the quality of life for individuals and their communities. The introduction of integrated care perspectives can lead to improved patient outcomes, including, but not limited to, physical, mental, and social selections that promote a higher quality of life.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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