

A Comparative Analysis of Technical and Vocational Education and Training (TVET) for Special Needs Students in Malaysia and Hungary

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Abstract

This article aims to analyze the situation of Technical and Vocational Education and Training (TVET) for special needs students in two countries- Malaysia and Hungary. This analysis will further explain the history of TVET education and the situation of special needs in both countries, apart from studying the TVET policy for special needs students, the role of stakeholders and also the challenges of TVET education for special needs. A comprehensive review of the literature was carried out using scholarly databases, research papers, and policy documents. The resource priority was given to articles that focused on TVET programmes designed especially for special needs students. This made it possible to make sure that the literature review included the most recent findings and advancements in the industry. Literature reviews and case studies have highlighted the successful revolution of TVET education for special needs individuals in Malaysia and Hungary, but it still requires more efficient measures to help these special students. As a conclusion, TVET for special needs can be seen from the highlighted areas for improvement and provides insights into the current situation by synthesizing policy documents, research studies, and theoretical frameworks. Furthermore, this comprehensive review provides information for policymakers, teachers, government and researchers working towards creating an inclusive TVET system that caters to the diverse needs of special needs students.

1. Introduction

The importance of education cannot be overstated and it also enhances an individual's intellectual capacity. Education not only equips individuals with the necessary knowledge and skills to succeed in the professional world, but it also enhances intellectual capacity, fosters critical thinking, promotes social mobility, and contributes to the overall development and progress of a nation. A highly skilled workforce can attract investment, create job opportunities, and contribute to a thriving economy. In the contemporary era, education is widely recognized as an intrinsic aspect of human development and empowerment. Recognizing the significance of education, various international conventions and declarations, such as the Universal Declaration of Human Rights (UDHR) and the United Nations Sustainable Development Goals (SDGs), acknowledge education as a fundamental human right (United Nations, 1948). A major global concern in education is Technical and Vocational Education and Training (TVET). According to Powell and McGrath (2019), TVET plays a crucial role in empowering individuals to exercise

their human rights and equipping them with the necessary skills to actively participate in society. The UDHR recognizes education as a fundamental human right where in Article 26 asserts that everyone has the right to education, which should be free and compulsory at the elementary level. TVET directly aligns with this right by providing accessible and practical education and training opportunities for individuals to develop skills that enhance their employability and economic independence.

TVET in education has been shown to offer special opportunities that traditional academic education frequently fails to provide. Among the many benefits of TVET in education is its ability to produce a skilled labour force. Practical skill development and hands-on training are highly valued in TVET programmes to ensure that students are ready for the workforce. Through this approach, students can gain practical expertise that is often lacking in traditional educational systems, bridging the gap between theory and practise. TVET programmes also frequently work with industry partners to ensure that students are provided with current, relevant knowledge that meets market demands (Kipli and Khairani, 2020). The development and course of TVET have been significantly influenced by government policies and initiatives. Numerous countries such as Latin America and the Caribbean (Hanni, 2019) and Asian Countries (Goncalves et al., 2019) have established specialised departments and agencies to oversee TVET due to their recognition of the critical role that TVET plays in social empowerment and economic development. As a result, curricula have been standardised, quality control systems have been established, and career pathways for vocational students to pursue further education or start their businesses have been established. Globalisation and the information era brought new opportunities and challenges for TVET in the late 20th century. Technology was evolving at a rapid pace, necessitating a constant upgrading of skills and a move towards a more flexible, needs-based system of vocational education. The incorporation of vocational training into regular education programmes ensures that special needs students acquire both academic and practical skills to meet the demands of the labour market (International Labour Organization, 2017).

The potential for unlocking the intelligence and comprehension of people with different types of disabilities exists in the integration of TVET and special needs education. Individuals with special needs may be of any age, ranging from young children to elderly adults, and may involve a variety of physical, cognitive, emotional, and behavioural variations. Professionals and society at large need to comprehend this phrase to promote inclusivity and provide the necessary resources to improve the quality of life for people with special needs. Students with disabilities may need special education services, which are recognised by the Individuals with Disabilities Education Act (IDEA) to meet their specific needs (Russo, 2019). Therefore, to govern this process effectively, IDEA classifies special needs into 13 specific categories which are (1) specific learning disability (SLD), (2) other health impairment, (3) autism spectrum disorder (ASD), (4) emotional disturbance (5) speech or language impairment (6) visual impairment, including blindness, (7) deafness, (8) hearing impairment, (9) deaf-blindness, (10) orthopaedic impairment, (11) intellectual disability, (12) traumatic brain injury and (13) multiple disabilities (Holloway, 2020). TVET programs for special needs individuals not only focus on skill development but also enhance psychological and emotional well-being (Lambina et al., 2021). TVET provides comprehensive support to promote the general growth of special individuals by addressing issues like self-esteem, confidence, and social skills. Each of these conditions requires different support mechanisms and inclusive practices to enable successful participation in TVET programs. Pre-vocational preparation programs aim to equip special needs students with the foundational skills required for successful entry into their chosen vocational field (Lutz et al., 2023). These initiatives focus on enhancing essential skills such as communication, problem-solving, teamwork, and independent living skills, enabling students to overcome potential barriers and embark on meaningful careers.

2. Methodology

A thorough literature review was conducted as the methodology for this comparative analysis research paper to find previous studies, reports, articles, and publications that related to the Technical and Vocational Education and Training (TVET) and special needs students from both countries- Malaysia and Hungary. The review of the literature was conducted by utilising keywords including "TVET", "special needs", "Malaysia", and "Hungary" to search academic databases, institutional repositories, government websites, and other pertinent sources. The structure, content, and implementation of TVET programs in Malaysia and Hungary were first examined through the analysis of all documents, policies, and reports related to TVET and special needs students from many relevant agencies including the ministry of Education, the government or non-governmental organisations, and educational institutions. The results of the data analysis were combined to provide a thorough synopsis of the TVET comparative study between Malaysia and Hungary for special needs. This synthesis involved highlighting the most important parallels, divergences, difficulties, best practices, and policy and practice ramifications. To identify the similarities and differences, the analysed data from both countries were compared and contrasted by focusing on the strengths and areas for improvement in each country.

3. History of TVET Education

3.1 Malaysia

Technical and Vocational Education and Training (TVET) in Malaysia has been essential to continuous attempts to transform its educational system. The history of TVET in Malaysia, emphasises important turning points, noteworthy advancements, and the overall effect on the country's socioeconomic environment. Through an exploration of historical background and contemporary advancements, it offers a thorough grasp of TVET education in Malaysia. Before Malaysia's 1957 independence, there was little emphasis on technical and vocational education. The main focus of British colonial authorities was academic education and traditional academic subjects (Shanmugavelu et al., 2020). In 1905, the Teacher Technical School in Kuala Lumpur was opened to provide training to technical assistants in the Public Works Department, Survey Department and the Malayan Railway. Later, the Technical and Industrial Education Commission was formed in 1918 to study the needs of vocational and technical education in the Malay States (SMT Tunku Jaafar, 2023). After achieving independence, the Malaysian government committed to providing TVET education top priority to foster quick industrialization and economic expansion.

A major turning point was reached in 1965 with the founding of MARA Institute of Technology (ITM), which gave students from lower-income families have access to technical education (Naqiyuddin Bakar et al., 2020). ITM was later elevated to Universiti Teknologi MARA (UiTM), a full-fledged university, in 1986. The Malaysian government launched several programmes in the 1980s and 1990s to increase access to TVET education (Haneef, 2021). The development of TVET marked a further advancement with the establishment of Kolej Komuniti (Community College) in 1991 which was responsible for offering post-secondary technical and vocational training opportunities. This was a step in the direction of democratising TVET education and increasing its accessibility to a larger range of people progressively anticipating the outcome of improved employment prospects and career advancement. The National Dual Training System (NDTS), which was introduced in Malaysia in 2012, fundamentally altered the TVET environment. With this innovative approach, students receive real-world skills that employers highly value by combining classroom instruction with job-related training. The NDTS has played a pivotal role in augmenting the employability of TVET graduates and mitigating the disparity between industry requirements and job seekers' skill sets (Ministry of Economy, 2023).

The Malaysian government vigorously supported collaboration among TVET education providers and pertinent industry sectors to ensure that programs meet industry needs. The Premier Polytechnics program launched which involved three polytechnics namely Sultan Salahuddin Abdul Aziz Shah Polytechnic in Shah Alam (Selangor), Ungku Omar Polytechnic in Ipoh (Perak) and Johor Bharu Polytechnic (Johor) to enhance technical education through industry partnerships for curriculum development, internships and job placement (Services, 2015). TVET education is becoming more industry-driven and demand-responsive due to these kinds of collaborations. The development of Malaysia's economy has been greatly aided by TVET education, which addresses industry demands and helps young people acquire relevant skills. The TVET sector has aided in addressing unemployment and lowering dependency on foreign labour. Malaysia has also been able to create a skilled labour force through TVET education that can draw in foreign investment, encourage technological advancement and innovation, and boost the world economy (Suriati et al., 2017). According to data from the Malaysian Department of Statistics (2022), during the second quarter of 2022, 62.2% (5.364 million) of all jobs in the labour market fell into the semi-skilled category. Following this were jobs requiring a high level of skill (24.9%; 2.144 million) and jobs requiring little skill (12.9%; 1.111 million).

3.2 Hungary

In Hungary, the intent of TVET education started as an attempt to bridge the gap between the system's requirements and those of a rapidly changing global workforce. With an emphasis on key turning points, challenges, and the system's current state, the TVET history in Hungary aims to provide a thorough analysis of the growth and development of TVET education. TVET developed in Hungary in the 1800s, as a result of the urgent need to equip the labour force with the specialised skills required for industrialization. The Royal Hungarian Technical College was established in 1860 as the first institution specially designed to provide technical education (Csilla, 2021). The organisation laid the foundation for future TVET facilities and encouraged the growth of the country's industrial sector. During the socialist era between 1950 and 1980, Hungary prioritised the expansion of TVET to support its industrialization drive (Laki, 2016). As stated by Benke and Rachwał (2022), important aspects of TVET development in Hungary from the 1950s to the 1980s demand central planning, industry collaboration, and adaptation to shifting economics. The objective of placing such a strong emphasis on TVET was to provide workers with the skills and abilities needed to fulfil the demands of an industrial sector that is fast expanding.

Hungary realised that TVET reforms had to be in line with international standards as it moved towards a market-oriented economy in the 1990s (CEDEFOP, 2020). Technical schools and vocational training centres appeared all over Hungary in considerable numbers. The organisation provided a broad range of courses, including computer programming, engineering, automotive maintenance, and culinary arts, to provide students the skills they needed to succeed in their chosen fields. The government-run system aimed to cater to various industries by establishing polytechnics, new apprenticeship programmes, and vocational schools (European Commission, 2023b). The practical skills students possessed satisfied the demands of the labour market at the time. Beginning in 1999, the Bologna Process required higher education in Europe to be modernised and standardised. Hungary instituted these reforms by introducing the European Credit Transfer and Accumulation System (ECTS) and placing TVET instruction within the larger framework of higher education (Hungarian Diaspora Scholarship, (2021). Hungary contested to raise the status and qualifications of vocational education, attract students from various backgrounds, and promote innovation in the field by incorporating TVET instruction into higher education.

Hungary understands the importance of collaborating with the private sector to execute TVET efficiently. The dual education system has gained popularity since 2015 and enables students to combine classroom instruction with on-the-job training at businesses. By fostering stronger ties between educational institutions and employers, this approach helps students gain practical skills and improves their career prospects (National Vocational and Adult Education Office, 2019). The current TVET system in Hungary is well-established and provides a large selection of programmes across numerous fields. Vocational schools, technical colleges, and apprenticeship training centres are all included in TVET education. These universities work closely with professional associations, employers, and industry associations to make sure the curricula are up to date and suit the changing demands of the labour market. The TVET system in Hungary actively engages in global cooperation by promoting student and academic mobility through many initiatives, including Erasmus+ (Vocational Education and Training | Erasmus+, n.d.). These programs improve TVET education in Hungary by promoting knowledge sharing, exposing students to various work settings, and encouraging the adoption of best practices from other nations. Economic development in Hungary and progress are greatly aided by TVET education. It ensures that the labor force is equipped with the technical skills required by numerous industries, including engineering, information technology, and the manufacture of cars.

4. Special Needs in Malaysia and Hungary

Special needs education plays a significant act in encouraging inclusive societies by promising people with disabilities equal opportunities to succeed. The evaluation of policies, methods, and obstacles will be the main topics of the in-depth investigation of the conditions of special needs education in Malaysia and Hungary. The parallels and discrepancies between the two countries will be examined via a comparative lens, emphasising the successes and potential areas for development in the provision of special needs assistance. Over the years, Malaysia and Hungary have made notable strides towards creating inclusive educational systems. In Malaysia, The Education Act of 1996, which established the legal foundation for inclusive education, has had a significant impact on this country's efforts. This law stipulated that every child must have access to a high-quality education in mainstream schools, regardless of their academic standing (UNICEF, 2014). Malaysia has established resource centres and specialised schools that adjust to the specific requirements of students with disabilities, to promote inclusivity in education even more. On the contrary, Hungary's approach to special needs education has been influenced by the socio-political shifts that followed the collapse of communism, placing a significant focus on ensuring equal opportunities for all. As a result of these modifications, inclusive education policies have been put into place, and special schools and support services for students with disabilities have been established. Hungary has also concentrated on providing special needs education training to educators and other professionals to affirm they possess the abilities and know-how needed to assist students with disabilities in regular classroom settings (Magyar et al., 2020).

Ensuring the equitable provision of education and support to individuals with diverse abilities is greatly aided by the legislative framework for special needs services. In Malaysia and Hungary, specific legal frameworks have been established to support individuals with special needs. The Persons with Disabilities Act 2008 of Malaysia safeguards the rights of individuals with disabilities in many domains, including education (Abdullah et al., 2017). Offering appropriate support services, reasonable accommodations, and inclusive learning environments are highly valued in all educational settings, ranging from elementary schools to universities. The Act also encourages the provision of assistive technologies and specialised resources to help them succeed academically. Meanwhile, in Hungary, the Equal Treatment and Promotion of Equal Opportunities (ETPEO) Act created equal rights for people with disabilities. This legislative action shows dedication to promoting inclusivity and anti-discrimination (Venice Commission, 2021). The main goals of the ETPEO model centre on inclusive education. It aims to facilitate the full participation and integration of special needs students needs into regular classrooms by establishing an inclusive learning environment (Kalman, 2022). The second objective is to provide teachers with professional

guidance and support in adapting their teaching methods to successfully engage a diverse student body. Along building to build an inclusive society, it also seeks to encourage students without disabilities to have positive attitudes and empathy for their classmates who have special needs.

Hungary and Malaysia have contrasting approaches to inclusive education. Malaysia prioritises the integration of special needs students needs into mainstream classrooms, offering additional resources and support services to facilitate this process (MyGOV, 2021). Hungary, on the other hand, has created special needs schools that embrace the concept of inclusive education and provide individualised support to meet the needs of each student. This method promises a personalised educational experience while promoting social integration (European Agency, 2021). Moreover, effective teacher training and professional development programmes are necessary for inclusive education. The introduction of the Special Education Teacher Professionalism Improvement Program by the Ministry of Education in 2019 is one of the Malaysian government's efforts to ensure the adequacy of teaching staff for special needs students (Ministry of Education Malaysia, 2013). Hungary also did not lag when it first launched a special needs school for special training to provide special training to special education teachers to ensure that each teacher has knowledge and skills in the teaching and learning process of special needs students (United Nations Educational, Scientific and Cultural Organization, 2018). Furthermore, owning a solid and reliable assessment system is important for determining the needs of special needs students. Malaysia applies a thorough assessment strategy that combines formal and informal evaluations to provide insights for support systems and educational interventions (United Nations Educational, Scientific and Cultural Organization, 2015). Hungary additionally establishes a comprehensive assessment framework that considers a range of assessments, including educational, psychological, and medical evaluations ensuring that each person obtains individualised support. While there are some minor variations in the way special needs students' assessments are implemented in Hungary and Malaysia, both countries have been successful in meeting their goals for assisting these students.

5. TVET Policies for Special Needs Students

TVET policies for special needs students are crucial in providing an inclusive and welcoming school environment that will support special needs students' success in Malaysia and Hungary. Both countries established in place a variety of policies that address the particular learning requirements and skill sets of special needs students. The TVET policy for special needs students in Malaysia is based on the National Vocational Education and Training Plan (Ridzuan and Abd Rahman, 2022). This plan focuses heavily on integrating special needs students into mainstream education while providing them with appropriate educational opportunities. Vocational training programmes customised to meet the needs of special needs students are provided by Vocational and Technical Schools and Centres of Excellence established in Malaysia. The government also supports work-based learning and has introduced inclusive teaching strategies like Individualised Education Plans to meet the unique needs of every student. Correspondingly, Hungary has worked hard to develop inclusive TVET policies for special needs students. Special vocational schools in Hungary provide a range of vocational training programmes that enable students with disabilities to gain relevant knowledge and skills. Individualised education has been implemented in Hungary, meaning that each student receives specialised programmes and support systems that are tailored to their interests and abilities (European Commission, 2023a).

Despite some similarities, Malaysia and Hungary have very distinct TVET policies for special needs students. In Malaysia, special needs students participating in vocational programmes are typically integrated into mainstream schools so they can attend classes with their peers who do not have disabilities. Hungary provides distinct vocational schools created especially for special needs students, ensuring a more focused and personalised approach to education. This variation in approach reflects the various viewpoints and resources that exist in each nation. The implementation of successful TVET policies for special needs students presents comparable difficulties for Malaysia and Hungary. Three main challenges remain: adequate funding, qualified teachers, and appropriate infrastructure. Improvements in accessibility and opportunities for professional growth are being made in both countries to ensure teachers are better able to prepare themselves to teach special needs students. The two countries can share best practises to enhance the TVET policies for special needs students. To provide a more specialised curriculum and improve students' vocational skills, Malaysia could, for example, emulate Hungary's strategy of setting up special vocational schools. In contrast, by incorporating special needs students into regular classrooms, Malaysia's inclusive education practices can help Hungary promote social integration and mutual understanding among all students.

6. The Role of Stakeholders

Stakeholders are individuals or organisations that are either directly or indirectly impacted by TVET education. They are formed up of advocacy organisations, government agencies, educational institutions, parents, teachers, and employers. Stakeholders collaborate to make sure that TVET programmes are tailored to the unique requirements of special needs students. TVET programmes for special needs students are largely under the

control of the governments in Malaysia and Hungary. To provide equitable access to high-quality education, they set laws, distribute funds, and establish policies. Governments need to work with stakeholders to create TVET curricula that are inclusive and to guarantee equal opportunities for special needs students. Stakeholders in Malaysia and Hungary have acknowledged the significance of inclusive TVET education for special needs students. Hungary has a robust legal framework that requires inclusive practices for all schools, and Malaysia has made great progress in promoting inclusive education policies. The goal of stakeholders in both nations is to consistently provide high-quality TVET education that will enable special needs students to find fulfilling jobs and integrate into society.

Regarding the roles of educators and vocational institutions, TVET institutions are important players in the provision of specialised education to special needs students (Mosalagae and Bekker, 2021). These institutions should modify the current vocational programmes and develop new curriculum frameworks to satisfy the unique learning needs of these students. An inclusive learning environment can only be fostered by well-trained educators who possess pedagogical strategies specifically designed for special needs students. In addition, parents play a crucial role as decision-makers and advocates for their special needs children's educational needs. Parents work together with teachers and TVET institutions to create customised lesson plans, track students' progress, and offer the support they need (Pirzada et al., 2023). Encouraging parents to participate as stakeholders has been shown to improve special needs students' outcomes in Malaysia and Hungary.

In TVET programmes, employers also play a critical role, especially for special needs students. TVET institutions can customise vocational training to meet industry demands and provide successful employment outcomes for special needs students by interacting with employers and establishing partnerships (Mordi, 2020). Companies benefit from having a trained workforce that encourages diversity and inclusion, which makes society more inclusive. Additionally, organisations that support inclusive policies and initiatives to improve the TVET system for special needs students are supported by government agencies and advocacy groups. These stakeholders engage with education providers to provide resources such as assistive technologies, create legal protections, and increase public awareness. Several suggestions can be taken into consideration to improve the efficacy of stakeholder engagement in TVET education for special needs students. These involve offering educators access to comprehensive professional development opportunities (Zhou et al., 2023), educating employers about the advantages of hiring special needs students (Tempez, 2023), fostering stronger stakeholder collaboration through frequent meetings and information exchange (United Nation, 2022) and increasing funding for inclusive education programmes (OECD, 2021).

7. TVET and Special Needs: What Are the Challenges Faced?

TVET is essential for providing people with the skills they need to enter the workforce. However, there are several obstacles to overcome when integrating special needs students into TVET programmes. A significant challenge in Malaysia and Hungary is the absence of inclusive TVET system policies and practices. People with special needs are frequently left out because there are not enough accessible spaces or accommodations. The reason for this omission can be ascribed to inadequate funding in these countries' educational systems alongside a lack of comprehension and knowledge. Consequently, decision-makers in charge of the TVET programmes in both nations must give inclusive education approaches that consider the various needs of people with special needs top priority. A further issue is the dearth of specialised training and assistance that TVET educators in Malaysia and Hungary can access. Teachers may lack the skills or knowledge necessary to modify their lesson plans in a way that best meets the needs of special needs students. TVET educators must therefore make investments in professional development programmes that provide them with inclusive teaching strategies and an understanding of the needs of special needs students if they are to meet this challenge.

Apart from that, another issue facing special needs students in Malaysia and Hungary is a lack of infrastructure and facilities. Among the difficulties experienced by special needs students in these two countries is the absence or lack of amenities such as wheelchair ramps, accessible restrooms, and sensory-friendly areas. Those with special needs therefore have limited eligibility for TVET programmes. The necessary structural changes to ensure inclusivity must be put into place to ensure their participation and prosperity. Moreover, the obstacles that individuals with special needs encounter in TVET in Malaysia and Hungary are partly caused by societal attitudes and perceptions about them. Stigmatisation and discrimination may have a serious negative influence on their self-esteem and willingness to take part in vocational training. The TVET systems in both nations should incorporate awareness campaigns and initiatives that encourage inclusivity and confront prejudice to address this.

Another major obstacle that special needs students in TVET, especially in Malaysia and Hungary, must overcome is a lack of resources and financial limitations. For plenty of people and organisations, the expenses of offering specialised help, assistive technology, and necessary accommodations can be overcome. To lessen the financial burdens on people with special needs and their families, the governments of both nations must thus set aside a sufficient amount of money and resources for the provision of grants and other forms of financial support.

Besides, individualised and customised learning strategies must be used. People with special needs usually need specialised teaching strategies that consider their unique learning preferences and aptitudes. Their learning experience and results can be substantially improved by putting personalised support systems in place and implementing individualised education plans.

The shift from school to work presents special needs students with additional challenges in TVET. There might not be many job openings or companies eager to hire people with disabilities in Malaysia or Hungary. Employers, educational institutions, and the government must work together to address this issue. Partnerships can help ensure that people with special needs have a smooth transition into the workforce by supporting initiatives for vocational rehabilitation, internships, and job placement. In addition, to fully address each person's needs, it is essential to have efficient lines of communication and teamwork between professionals, parents, and special needs individuals. Successful TVET navigation for individuals with special needs can be facilitated by collaborative efforts that result in the creation of comprehensive support systems, guidance, and counselling services.

8. Conclusion

Creating an inclusive and accessible TVET environment for individuals with special needs in Malaysia and Hungary is a complex process that demands concerted efforts from various stakeholders. Addressing challenges such as limited accessibility, infrastructure inadequacy, skilled workforce availability, changing societal perceptions, and aligning programs with industry requirements is crucial. By implementing individualized learning plans, strengthening policy frameworks with ample financial support, and facilitating a seamless transition to employment, Malaysia and Hungary can foster a more inclusive and equitable TVET system for special needs individuals. The challenges that people with special needs encounter in TVET in Malaysia and Hungary are significant. Critical barriers that need to be addressed include a lack of inclusive policies, a lack of knowledge and comprehension, inadequate infrastructure, societal perceptions, financial limitations, and a lack of job opportunities. Prioritising inclusive education tactics, funding professional development for teachers, enhancing infrastructure, launching awareness campaigns, and allocating funds are all necessary for policymakers and stakeholders. By taking on these obstacles head-on, both nations can develop a TVET system that is more open, equitable, and inclusive and meets the various needs of people with special needs, giving them the opportunities and abilities, they need for a prosperous future.

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Conflict of Interest

The authors declare no potential conflict of interest about this article's research, writing, or publication.

Author Contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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