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Bridging the Gap: Addressing Educator and Caregiver Challenges in Transitioning Students with ASD to Higher Education and TVET - A Scoping Review

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Abstract: Students with Autism Spectrum Disorder (ASD) often struggle with communication and social skills, necessitating significant support from family, caregivers, and educators. In Malaysia, while Special Education Needs (SEN) students are typically integrated into general education during their school years, their presence in tertiary education or TVET remains underrepresented. This scoping review aims to identify and understand the challenges general educators and caregivers face in facilitating the transition of ASD students from higher education to tertiary education and TVET. A comprehensive analysis of literature from Scopus, ProQuest, and Science Direct databases, focusing on studies published between 2013 and 2023, was conducted. The findings reveal mixed experiences, highlighting significant difficulties and areas for improvement. General educators and caregivers report numerous challenges, including inadequate training, insufficient resources, and a lack of tailored support systems, which collectively hinder the smooth transition of ASD students into higher educational settings. It suggests that targeted interventions and increased collaboration between educators and caregivers can lead to more positive outcomes. This study provides original insights into the specific needs and barriers faced by ASD students in Malaysia, offering valuable implications for policymakers, educators, and caregivers to create more inclusive and effective educational transitions. Future research on transitioning students with ASD to higher education and TVET should focus on longitudinal studies to track long-term outcomes, the development and evaluation of targeted intervention programs, and the role of assistive technologies in the transition process.

Keywords: *Autism spectrum disorder(ASD), General educators, Caregivers, Challenges, Transition, Tertiary Education, and Technical and Vocational Education Training (TVET)*

1. Introduction

Autism spectrum disorder (ASD) is a rapidly growing neurodevelopmental disorder, with an increasing number of students diagnosed each year. This rise has led to more students with ASD enrolling in tertiary education and TVET (Technical and Vocational Education and Training) programs (Virolainen et al., 2020). Despite this increase, many youths with ASD face significant challenges in completing post-secondary education due to their unique needs and difficulties. Educating these students requires specialized training for educators, as emphasized by the National Autism Society of Malaysia (NASOM), which notes that students with ASD present unique challenges compared to their typically developing peers.

The current situation regarding the education of students with ASD involves examining global and Malaysian support systems for People with Disabilities (PWD), including international frameworks such as the UN Convention on the Rights of Persons with Disabilities (UNCRPD) and Malaysia's National Education Blueprint 2013-2025 (Ministry of Education Malaysia, 2013). Government policies, such as the Persons with Disabilities Act 2008, are assessed for their effectiveness in addressing the needs of students with ASD (Ministry of Women, Family and Community Development Malaysia, 2021). Current research highlights the specific needs of ASD students, including gaps in resources and support services (Smith et al., 2023). The effectiveness of intervention programs, assistive technologies, and educator training is evaluated, alongside the impact of cultural and socioeconomic factors on these students' educational experiences (Chen et.al., 2023).

Moreover, integrating a creative entrepreneurship-based learning model may leverage entrepreneurial projects to enhance problem-solving, adaptability, and creativity, providing ASD students with real-world experience

and confidence. By incorporating social skills training and collaborative opportunities, this model addresses social integration and communication challenges, preparing ASD students for academic, vocational, and entrepreneurial success in a supportive environment (Handajani et al., 2022)

There is a pressing need to prioritize support for individuals with High-Functioning Autism Spectrum Disorder (HFASD) to facilitate their development and integration into higher education settings. This review paper examines the challenges general educators and caregivers face in supporting the transition of ASD students into tertiary education and TVET. Transition experiences have a long-term impact on the social and academic performance of individuals with ASD, influencing their success in post-secondary education (Stack et al., 2020).

Recent studies have highlighted the complexities and growing concerns surrounding the education and support of individuals with ASD in Malaysian society (Ilias et al., 2019). Further, there has been a notable rise in the enrolment of students with ASD in tertiary education and Technical and Vocational Education and Training (TVET) programs across Malaysia. The Individuals with Disabilities Education Act (IDEA) in the United States was established to ensure greater accessibility and adequate educational achievements for individuals with special needs (Al Jaffal, 2022). However, youths with ASD often struggle with communication, social skills deficits, and repetitive behaviors, leading to less support due to societal misunderstandings about the disorder. General educators often display less positive attitudes and lower levels of knowledge compared to special education educators (Segall & Campbell, 2012). This is due to a lack of training and understanding negatively impacts their ability to support ASD students effectively in inclusive education settings (Messemer, 2010).

To support students with ASD in transitioning into tertiary education or TVET, it is crucial for general educators and caregivers to fully understand the disorder. ASD is associated with a wide range of behaviors and characteristics, necessitating varying levels of support. The demands of students with ASD, including distinctive traits and disruptive behaviors, pose significant challenges for educators, particularly when resources are limited (Gómez-marí et al., 2022).

Institutional support and resources are often inadequate, further complicating the challenges faced by general educators and caregivers. Proper training and clear policies are essential for effectively supporting students with ASD. Without specialized training, educators may fail to provide the necessary support, hindering the academic and social development of these students (Talib & Paulson, 2015). Additionally, societal stigmatization and discrimination exacerbate these challenges, highlighting the need for comprehensive education on ASD in teacher training programs (Majin et al., 2017).

ASD is characterized by pervasive developmental disorders affecting social capabilities, fixations on specific topics, and repetitive behaviors (Segall, 2008). Students with ASD require different levels of support depending on the severity of their disorder. Caregivers, who often understand their children's behavior better than educators, play a crucial role in this support system. However, the transition process into tertiary education or TVET can be challenging for caregivers, resulting in inadequate support.

The increasing prevalence of students with ASD in post-secondary institutions necessitates the development of strategies to meet their needs (Gardner & Iarocci, 2013). Educators must be knowledgeable about ASD, and caregivers must be prepared to assist educators in providing the necessary support for a smooth transition. Therefore, this review systematically explores the challenges faced by general educators and caregivers in supporting ASD students transitioning to higher education and TVET.

3. Methodology

The review was carried out following the framework outlined by Arksey and O'Malley (2005). The six stages are outlined below.

Study design and protocol: A scoping review method was employed, as this method can be used to identify gaps in existing literature (Arksey & O'Malley, 2005). A systematic review was based on several criteria which include record identification on the database, screening, assessing eligibility of article and data extraction for analysis. Through the synthesisation of a wide range of literature and articles, a systematic review will help to

determine the challenges faced by general educators and caregivers in supporting ASD students in their transition into tertiary education and TVET. The eligibility criteria will only focus on papers published in English journal articles and review papers were included, in line with other eligibility of accessing papers that focus only on general educators, caregivers, autism spectrum disorder (ASD), transition, tertiary education and technical and vocational education training.

Formulation of research question: The research starts by describing the rationale for the review according to the context of the research. Initial construct a statement of the question that highlights 3 important elements in (PCC) which are population, concept and context. Additionally, a research question was formulated - What are the challenges faced by general educators and caregivers in supporting students with ASD that transition into tertiary education and TVET?

Systematic searching strategies: In conducting systematic searching techniques, three stages of identification, screening, and eligibility were done to ensure the study conducted was non-biased and most importantly followed the scoping review process for a broad search outcome.

Identification: The initial stage of this systematic search is identification, which was done to identify the appropriate keyword to be used for the open database search. Based on the research question developed, several keywords were identified for database searching. The keywords for this review are "challenges", "general educators", "caregivers", "transition", "autism spectrum disorder (ASD)"AND "tertiary education", as well as other related keywords such as "high functioning autism spectrum disorder (HFASD)", "autism", "ASD", "general education", "university", "parents", "general educator", AND "technical and vocational education training (TVET)". The systematic review data identification was done on 13th July 2023 by selecting three open database sources which are Scopus, ProQuest, and Science Direct. The advanced search function in each open database helps to narrow down the literature to manageable numbers to be identified. This step has yielded (N= 1,810) prospective articles for the screening process.

Screening: The screening stage for the systematic search strategy is critical as it distinguishes between potential and non-potential articles that are appropriate for this review study. The screening process is a selection of articles by utilizing the screening function in the database search function. The early screening process was conducted by strictly observing the article keywords, title and abstract (Pahlevan-Sharif et al., 2019). This review article focuses on the challenges that general educators and caregivers encounter in facilitating ASD students' transition to postsecondary education and TVET. Because some of the papers were irrelevant to the scoping review, only the most relevant prior papers were retrieved. However, N=265 prospective papers are acquired and chosen for the eligibility process.

Eligibility: In the third step, which concerns eligibility, the selected 265 papers were re-examined to guarantee adherence to the inclusion and exclusion criteria. The abstracts were examined at this stage to establish the papers' eligibility. If the suitability of the article was not clearly stated in the title, the entire content was skimmed. As a result, 235 publications were removed as the title, abstract and content did not meet the context of the scoping review and research question. As a result, only N=30 papers articles were ultimately selected for the final qualitative synthesis.

Table 1: Eligibility Criteria

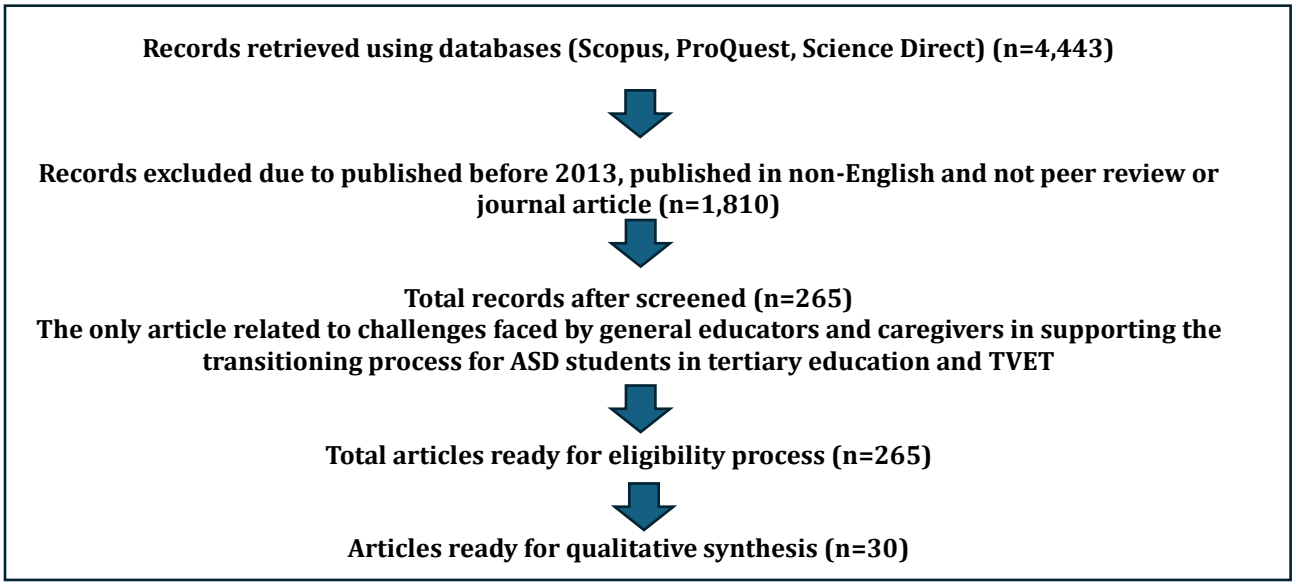
Criteria	Inclusion	Exclusion
Timeline	2013 until 2023	Records below 2013
Document Type	Article journal Empirical study and peer review article	Business articles, letters, editorials, conference reviews, notes, and book
Language	English	Other than English
Region	International	None
Choice of Article	Selection of article based on keyword search in the database	Article other than the keyword searching
Search option	Emerald Insight, Science Direct, and Google Scholar	Other than these three databases.

Keywords	"challenges", "general educators", "caregivers", "transition", "autism spectrum disorder (ASD)" "tertiary education" "high functioning autism spectrum disorder (HFASD)", "autism", "ASD", "general education", "university", "parents", "general educator", AND "technical and vocational education training (TVET)"	Keywords that are not suggested by
Search for relevance	Title and abstract of each article	All the unclear articles' title and abstract
Final selection	The only article related to challenges faced by general educators and caregivers in supporting the transitioning process for ASD students in tertiary education and TVET	Articles which are not providing the information related to the topic.

4. Results and Discussion

Based on data charting (Figure 1), N=30 research articles were eligible for selection and analysis. Data portray research article publication from 2013 to 2023. The primary research in the similar research context is diverse with quantitative and qualitative research design. General findings noted that students with ASD face challenges relating to people's beliefs concerning their intellectual deficit, neglect of their caregivers, financial difficulty and stigmatization from their surroundings. The majority of parents (24 out of 29 or 83%) expressed concerns about their child's social relationships. This is not unexpected given that social skill challenges are a major component of ASD. Parental stress is mentioned due to ASD student's transition to the next level of education. Parent struggle with anxiety and doubts throughout the process of their autistic children's transitions.

Figure 1: Systematic Searching Strategies for Scoping Review



The findings of this scoping review reveal significant challenges faced by general educators and caregivers in supporting the transition process for ASD students into tertiary education and TVET. These challenges can be addressed and mitigated by understanding several key issues.

Firstly, students with ASD encounter difficulties stemming from societal beliefs about their intellectual capabilities, which often leads to stigmatization and neglect from caregivers and peers. This societal perception can hinder their ability to thrive in educational settings. Misconceptions and stereotypes about ASD often lead to assumptions of intellectual deficits. The general public and even some educators may wrongly perceive all individuals with ASD as having uniformly low cognitive abilities. This misconception fails to recognize the

spectrum's wide variability in intellectual functioning (Douglas & Sedgewick, (2024)). The variability in intellectual abilities within the ASD spectrum is substantial. While some individuals may have significant challenges in academic settings, others demonstrate exceptional skills in specific domains, such as mathematics, music, or visual arts. Recognizing and supporting this diversity is crucial for providing tailored educational interventions. However, the educational system often struggles to accommodate this variability adequately. Standardized assessments and rigid curriculum structures may not capture the true potential of students with ASD, leading to underestimation of their capabilities and inappropriate educational placements. Organizations like Autism Speaks emphasize the importance of personalized education plans that consider individual strengths and challenges.

Parents and families must provide a firm foundation for autistic students to feel safer and at ease engaging in school activities. Based on student replies, (Davis et al., 2021) underlined the relevance of parental and family ties for success throughout the transition to college and during enrolment. (Packer et al., 2022)discovered a similar conclusion on parental engagement playing an important role in aiding children's growth throughout their transition to a new setting. Similarly, (Sefotho & Onyishi, 2020) observed that students' responses to signs of stress and anxiety are due to a lack of family members or close friends.

Caregivers of individuals with ASD often experience profound emotional and physical stress due to the demands of caregiving. The relentless nature of managing behavioral challenges, navigating complex healthcare systems, and advocating for educational and social support can lead to caregiver burnout and compromised mental health. Research, such as studies cited by the Autism Society, underscores the higher prevalence of stress-related disorders among caregivers compared to the general population. The neglect of caregivers' needs can perpetuate a cycle of strain and diminish their capacity to provide effective support to individuals with ASD.

Caregiver support systems play a crucial role in facilitating the transition of students with ASD into tertiary education or TVET settings, where they encounter unfamiliar environments (Wang, Liu & Zhang.,2022). These systems encompass emotional and psychological support, academic and non-academic assistance, and environmental adjustments, all aimed at helping students settle and succeed in new educational contexts. ASD students, often marginalized and misunderstood, face significant challenges such as prejudice and stereotypes, hindering their academic focus and growth (Davis, Watts & Lopez, 2021). Establishing inclusive learning environments is paramount, ensuring that these students can effectively communicate, learn, and interact with peers, tailored to their specific educational needs and capabilities (Maysela Azzahra et al., 2022). This personalized approach not only supports academic development but also fosters social and emotional growth through interactions with peers. During transitions to higher education, ASD students commonly experience feelings of isolation, anxiety, and difficulty in social engagement, necessitating strong support networks from trusted individuals to maintain their mental well-being (Davis et al., 2021). Studies emphasize the pivotal role of parental involvement, counseling, teacher support, and peer assistance in ensuring successful transitions and ongoing academic and social integration (Packer et al., 2022; Sefotho & Onyishi, 2020). These findings underscore the critical need for robust caregiver support systems to enhance the educational journey and overall well-being of ASD students navigating new educational landscapes.

The financial strain on caregivers of individuals with ASD is substantial. Costs associated with specialized therapies, medical care, and educational support often exceed typical household budgets. Moreover, the caregiving responsibilities may limit caregivers' ability to maintain full-time employment or pursue career advancements, leading to economic insecurity. The neglect of financial support mechanisms and workplace accommodations exacerbates these challenges. Policy reforms are essential to ensure equitable access to financial assistance, respite care services, and employment protections for caregivers of individuals with ASD. Additionally, financial difficulties and a lack of understanding of their surroundings exacerbate the challenges faced by these students. Parents have also expressed concerns about their children's poor social relationships, which can impact their overall educational experience (Davis et al., 2021).

Furthermore, the review found that many caregivers experience stress and anxiety during the transition process. This stress is often due to a lack of understanding of institutional policies and poor relationships with general educators. Effective collaboration and communication between caregivers and educators are crucial to providing the necessary support for ASD students (White et al., 2017). Caregivers also reported feeling

overwhelmed by the need to advocate continuously for their children's needs and support (Sefotho & Onyishi, 2020). Furthermore, the emotional and psychological strain on caregivers during the transition process is well-documented in the literature. Davis et al. (2021) and White et al. (2017) both note that students with ASD often struggle with loneliness, anxiety, and peer interactions, necessitating substantial support from caregivers. The review corroborates these findings, highlighting the significant stress and anxiety experienced by caregivers, often due to a lack of understanding of institutional policies and poor relationships with general educators.

Educators have an important role in delivering adequate education for their pupils, whether they have special needs or are typically developing. However, not all general educators have positive attitudes towards the inclusion of students with ASD in general education settings, some have neutral and negative attitudes (Mahzan & Md Nor, 2023). General and special education educators must be properly equipped with appropriate information, a good attitude, and extensive experience to safeguard kids with ASD from being bullied by their typically developing peers who may be unaware of the disease (Dağlı Gökbulut, Gökbulut, & Yeniasır, .,2024). In examining the critical role of educators in providing effective education for students with Autism Spectrum Disorder (ASD), several key studies underscore significant challenges and necessary improvements. Ballantyne et al. (2021) highlight a pervasive issue: many general educators lack the expertise needed to effectively manage and educate students with ASD, which significantly hinders their ability to provide adequate support. This finding underscores the importance of targeted training and professional development initiatives aimed at equipping educators with the necessary skills and knowledge. Segall (2008) contributes further by revealing that educators with limited experience in ASD education often possess insufficient knowledge about the disorder, thereby impeding their effectiveness in inclusive classroom settings. Simó-Pinatella et al. (2023) emphasize that inadequate knowledge remains a significant barrier to providing inclusive education, emphasizing the need for comprehensive training programs tailored to address specific educational needs related to ASD. Ismail et al. (2018) delve into the challenges faced by Technical and Vocational Education and Training (TVET) educators, citing issues such as inadequate training and lack of industry experience, which hinder their ability to effectively prepare students with ASD for the workforce. Moreover, Talib and Paulson (2015) highlight the diverse and individualized support needs of ASD students, advocating for personalized educational approaches that accommodate varying learning styles and behavioral patterns. Together, these studies underscore the complex landscape of ASD education, pointing to critical need for ongoing professional development and tailored support strategies to enhance educational outcomes for students with ASD.

Consequently, general educators are found to be incapable of providing successful inclusion for students with ASD due to their lack of knowledge and understanding of the disorders. A study by (Simó-Pinatella et al., 2023) stated that insufficient knowledge is one of the barriers to providing inclusive education. Knowledge relating to ASD is very crucial for educators as the students might need substantial support to fulfill their needs. Students with ASD are diagnosed with brain impairment which causes them to have difficulty in two main areas which are social communication and interaction and repetitive and recurring behaviors.

Besides, many past studies have also highlighted the challenges and lack of quality among TVET educators, mentioning that they lack training and industrial experience. For instance, a study by (Ismail et al., 2018) stated that according to their interviews with lecturers, instructors, and industrial employees, the problems with incompetent educators stem from their teaching techniques, poor classroom management, a lack of industry experience, a lack of competence skills, and a lack of passion in teaching the given topics. This issue is very crucial to investigate as it will affect the performance of students in TVET programs to produce a highly skilled workforce. Educators' training is particularly important to ensure students maximize their potential in preparing them for the industrial world. Besides, well-trained educators will help in providing inclusive education for special needs students in TVET programs.

Besides, to properly accommodate these students in vocational streams, educators are needed to be knowledgeable about the disorder and each of their student's behaviors. The prior study mentioned that despite the fact all autistic students have common underlying impairments, no two are exactly alike (Talib & Paulson, 2015). For example, one of the students with ASD might have intellectual ability but also have speech and language impairments which make them socially communicate and interact with people while others might suffer emotional functioning impairment or display restricted interest in certain areas. Students with ASD who

demonstrate restricted behavior, or repetition of behaviors might have a hard time shifting from normal situations to different situations due to their rigid routines in conjunction with having a fixation on interests.

Besides that, Integrating the principles of Education 4.0 with the challenges in transitioning ASD students to higher education and TVET involves leveraging personalized learning, collaborative tools, advanced technologies, and lifelong skill development. By utilizing adaptive learning platforms, virtual reality for social skills practice, user-friendly assistive technologies, and continuous education pathways, educators and caregivers can better address the individualized needs of ASD students. Professional development for educators, tailored curriculum design, robust support systems, and advocacy for supportive policies are essential steps to create an inclusive, effective educational environment that prepares ASD students for future success (Kibat et al., 2021).

In conclusion, addressing these challenges requires a multifaceted approach that includes increasing awareness and understanding of ASD among general educators, fostering strong relationships between caregivers and educators, and providing comprehensive support systems that encompass emotional, psychological, academic, and environmental assistance (Maysela Azzahra et al., 2022). By tackling these issues, we can create a more inclusive and supportive educational environment for ASD students.

5. Conclusion

The scoping review provides an opportunity in the knowledge gap related to such context of challenges faced by general educators and caregivers in supporting the transitioning process for ASD students in tertiary education and TVET. A smooth transitioning process could be achieved by ASD students which would also help them to be in an inclusive education setting and achieve good academic performance that led them to have future careers like their typical development peers. However, the attitude of some general educators needs to be observed as they also play a significant role in ensuring ASD student's transition process can be achieved. Important note depicts that general educators and caregivers do influence the support given to students with ASD in transitioning into tertiary education and TVET. Although some issues related to general educators' experience, training, and knowledge, as well as their impacts on supporting students with ASD, emerged as significant, exploration to gain a better understanding relating to this study. Different views between scholars on whether general educators or caregivers provide a better support system for ASD students in transition, cooperation between both parties still plays a significant role in providing a better future for ASD students.

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