

Original article

Effects of visual impairment on sensory integration and new opportunities for inclusive education

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Abstract

Objective: Inclusive education aims to offer comprehensive collaborative education to healthy and disabled children. The purpose of the study is to perform a comparative analysis of the learning results in healthy and disabled children from different groups with those who study remotely, and a similar analysis between students of higher education institutions. **Methods:** The study was conducted in 2018–19 in Moscow, Russia, involving 150 students with disabilities and 397 healthy students. Consideration was given to academic performance, psychophysical development and speech development. **Results and Discussion:** Among students with healthcare nosologies, students with vision impairments are considered the most promising. The number of underachievers is 4.9 times lower than their peers (p 0.001). The greatest success in e-learning was among students with health nosologies relative to a similar group of children. **Conclusions:** The number of outstanding students in the group with visual impairments exceeds those in the control group by 1.5 times (p≤0.05). Of the students with health nosologies, the most promising group is visually impaired students. High academic performance of students with visual impairments and disordered motor activity provides them with the opportunity to practice comprehensive education at universities, including inclusive education, which corresponds to current worldwide trends.

Keywords: psychophysical development; speech development; visual impairment; health nosologies, academic achievement.

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Introduction

The present stage of development of human society implies increased control over the healthy lifestyle of the younger generation, particularly children. A special attention deserve children with disabilities. They include the following categories of children with disorders in: a) mental evolution; b) mental subnormality; c) unimpaired functioning of the visual

and auditory sense analyzers; d) emotional and volitional spheres of personality; e) musculoskeletal system.¹

From the medical point of view, in particular preventative treatment, health is an essential condition for the preservation of normal or approximately normal personal qualities. Health, in turn, depends on the way of life. This statement applies equally to

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disabled children. Aside from an active lifestyle, a normal lifestyle also includes the cognitive activity of a child with a disability. To a large extent, a child's lifestyle is dependent upon that of family members.²

Among the problems present in children with disabilities, the majority are specified by the peculiarities of their interaction with the surrounding society (100% of children). In particular, it also includes family issues observed in every three out of four children (75%), which can be a cause of emotional conflicts in the majority of children with disabilities (85%). All such children have cognitive and behavioral problems caused by their physical or mental diseases, i.e., biological impairments, which are also seen in 100% of children.³

Noci influence may facilitate the formation of mental deviations in early childhood (up to age 5-7), including in children with disabilities. This moment is of crucial importance as it is a time when basic moral and ethical feelings are formed, accompanying the child throughout their future life. Such influences leave children with disabilities particularly vulnerable, not only because of their families, but also because of their peers.⁴ In addition to congenital mental illness, these children have increased anxiety due to reduced self-esteem, outbursts of anger, irritability, and constant mood swings. Heightened anxiety and other mental disorders may also be caused by parental alcoholism, which is seen in 25% of parents of families with children with disabilities.⁵ An extra burden on the psyche of such children is the awareness of their failure in life, their inferiority compared to "normal" children. It is known that among mothers whose children do not have health problems, the frequency of depression is 9% on average, while among those who have disabled children, this frequency amounts to 19% of cases, which is twice as high.⁶ Research over recent years has shown that the more stressed the body is, the weaker its functions are and its mental structure is damaged.³

There is a very high prevalence of health-limiting syndrome worldwide. According to the UN, about 450 million people (almost one in fifteen of the over 7 billion population of the Earth) of all the inhabitants of the planet have mental and physical health disorders. The World Health Organization confirms these figures and points out that 13% of the population has mental and physical health problems. Developmental impairments from birth are revealed in 3% of all newborns, and the remaining 10% have

other types of mental or physical impairments. As a result, the total number of children with disabilities stands at 200 million.⁷ These scales are evident across the globe, in every country in the world. In Russia, in particular, there are 554,000 children under 18 years old.⁸ In this context, the means to integrate these children in human society as full participants are still extremely urgent. A set of measures, also known as inclusive education, serves this purpose.

The primary goal of inclusive education is to teach children who, for whatever reason, have a disability together with healthy children.^{9,10} In this type of education, children not only learn together, but also share leisure activities.^{11,12} This also includes other activities designed to build and develop additional skills and education.^{13,14}

However, inclusive education has some challenges. According to some experts, only some students or learners with disabilities can receive a comprehensive education.¹⁵⁻¹⁷ This is primarily because students have a level of speech and general development consistent with or close to the norm at that age.¹⁸⁻²⁰ Inclusive education methods may be effective for children with speech disabilities or speech delays if targeted and timely prevention of these disorders is in place.²¹ Furthermore, inclusive education can be very successful for some autistic children.²²

Depending on the nosology of health problems, different outcomes may be obtained. In particular, the key factor in hearing impaired children is the development of speech structure associated with phonetic and intonational components.^{23,24} For these children, the rhythmic movements of the body and vocal organs, especially music and dance classes, are very important for timely prevention.²⁵ In the case of visual impairment, the normal movement development also contributes to the progress in the ability to accurately perform a set of movements related to play, work, or learning activities.²⁶ Speech impairment prevention is also very important for later learning by using a combination of different techniques, such as movement, tempo and rhythm, and speech.²⁷

Despite the large number of studies focusing on each group of learners (or students) with disabilities, they all tended to be performed within the same group.²⁸⁻³⁰

The People's Republic of China is the most populated country on the planet. As a result, the number of persons with disabilities is also very high here. In China, issues of inclusive education are highly

relevant, and a great deal of attention is given to this type of education.³¹ Mixed classes are being held in secondary schools, whereas also higher education institutions so pay special attention to students with disabilities. The results obtained by the authors of this study may be used as recommendations for other parts of the world where inclusive education is practiced.

This study provides a comparative analysis of student achievement across different age groups in an inclusive online educational environment. As the primary criterion, the authors selected one medical criterion, namely, the nosology of the disease. The authors hypothesize that, according to the nosology of health problems, students will obtain variable performance results, significantly inferior to those of students without health limitations. At the same time, some groups of schoolchildren with disabilities will achieve outcomes that are close to or statistically inseparable from those of non-disabled peers.

The purpose of this study was to compare learning outcomes of children with disabilities from different groups with healthy children in a school with inclusive online education, as well as to conduct a similar analysis among university students. The objectives of the study were to: a) assess the learning outcomes of children with disabilities from different groups; b) compare the learning outcomes of children with and without disabilities in a comprehensive secondary school; c) conduct a comparative analysis among students attending inclusive education courses.

Material and methods

Materials

The study was conducted in 2018–2019 in Moscow (Russia), involving 150 students with disabilities (out of whom 35 were from China), and 397 healthy students, including 65 students from China.

Data were collected among 150 students. For the control, similar data were collected for 397 students at the university without abnormalities in schools.

Depending on the nature of the health nosology, children were divided into the following groups: a) visual disturbances; b) musculoskeletal system disorders; c) mental retardation. The gender distribution is presented in Table 1. The control group of students, there were 197 boys and 200 girls, also without differences by age.

Table 1. Distribution by gender of schoolchildren and students according to nosology of health limitations

Group	Boys	Girls	Total
Fifth-year students			
Visual disturbances	53	42	95
Mental retardation	11	16	27
Musculoskeletal disorders	13	15	28

No significant differences were observed in the gender distribution among the groups. There were also no age differences between the three groups.

Research design

The belonging of each of the students to a particular group with health limitations was confirmed by the corresponding medical documentation based on the conclusion of a specialist. Depending on the results, three achievement criteria were identified: a) underachievement in all subjects; b) underachievement in one subject; c) achievement in all subjects. The following criteria were analyzed for students: a) academic performance (satisfactory, good, and excellent grades); b) employment (or continuation of studies).

Ethical and Moral Standards

This study did not violate generally accepted norms of ethics and morality, and the confidentiality of information was respected. A verbal and written agreement was made with each of students from the control group and the group with health problems on non-disclosure and anonymity of information, on observance of individual rights, as well as an observance of ethics and morals in the research.

Statistical analysis

The data were statistically processed using Statistica v. 6.0 (StatSoft Inc., USA). The data were entered into Excel database 2013 (Microsoft Inc., USA), mean scores and error of the mean were calculated, and results for each of the parameters (performance in one group or another) were presented as a percentage. The significance of the differences was derived from a two-sample t-test for independent samples. Differences were significant at the minimum level of $p \leq 0.05$.

Ethical clearance: The authors declare that the work is written with due consideration of ethical standards.

Results

Students demonstrate results with significant differences between controls and those with health nosologies (Figure 1). The level of excellence among control group students was still lower than among visually impaired students ($p \leq 0.05$). On the other hand, there were approximately as many excellent students in the normal group as there were among visually impaired students ($p \geq 0.05$). The number of visually and motor impaired students who performed well was 9% higher ($p \leq 0.05$).

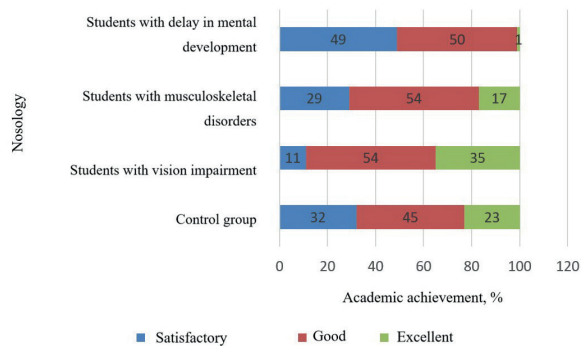


Figure 1. Academic achievement of control students and group with health issues.

Finally, the control group had 0.5 to 2.0 times as many students with poor academic performance as students with visual or motor impairments ($p \leq 0.05$). On the other hand, there were more students with poor academic achievement among the mentally disordered group than among the control group ($p \leq 0.05$). Students with retarded mental development were usually characterized by satisfactory and good academic results; there were virtually no excellent students among them. No significant differences were established between the group with satisfactory scores and the group with good scores. Among the students with musculoskeletal disorders, the number of good students was 1.8 times higher than the number of low-performing students ($p \leq 0.05$) and 3 times higher than the number of outstanding students ($p \leq 0.01$). Maximum number of outstanding and good-performing students is among those with visual impairment (1.5 times more good-performing students compared to outstanding ones, $p \leq 0.05$, 4.9 times less good-performing students compared to outstanding students, $p \leq 0.001$), and their number exceeds even the control group (1.5 times more outstanding students, $p \leq 0.05$). As a result, students with visual disabilities are the most promising group in terms of learning among students with health

nosologies.

The employment analysis showed that nearly half of students with visual disabilities prefer to continue their studies even after graduation (Figure 2).

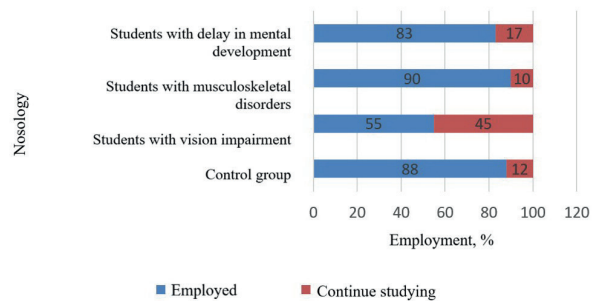


Figure 2. Employment rates of control students and the group with health limitations.

The situation in the group with musculoskeletal problems and retarded mental development is similar to that in the control group. In particular, most of the students prefer to get a job and not to continue their education (12-17%) continue, the rest do not, i.e. 6.5–7.0 times fewer students than employed, $p \leq 0.001$).

Discussion

In modern medical practice, when analyzing the causes of personality formation in students with disabilities, the dominant view is that the main cause is minimal brain dysfunction- congenital organic lesions of the brain or spinal cord. The consequences include cerebral palsy, mental retardation, and muscular skeletal dysfunction. In less serious lesions, autism, mental developmental disorders, nervous tics and hyperactivity are among the consequences. This concept is medically referred to as the reproductive trauma continuum. Most modern researchers consider it oversimplified compared to the real situation. In addition, some studies suggest that minimally impaired brain function is not the primary cause of neurodevelopmental disorders in students.

The brain has a number of compensatory mechanisms that, for the most part, can mitigate the effects of minor brain damage. The most significant influence on the formation of mental disorders will be a combination of neurologic and mental factors. This is in inverse correlation with the age of the child, i.e., the younger he or she is, the more negative influence neurological symptoms will have on his or her psyche.³² The mental condition of disabled students therefore depends on external factors. Furthermore, as they grow older, the primary role is reassigned to

mental factors. Students with motor disabilities, such as cerebral palsy, require several specialists at once – a neurologist, a psychiatrist.³³In the preschool period of a child's development, these symptoms occur through mental development delays combined with symptoms of neuropathy. At school age, the primary role is cognitive impairment and, during adolescence, emotional and volitive disorders.³⁴Ultimately, this leads to the development of pathologic personality.³⁵It is interesting to note that these disorders are twice as frequent among boys as among girls.³⁶

The example of students with speech disabilities illustrates the risk factors that cause physical and mental health problems. These include: a) medical and biological factors – all students participating in the study were assigned to the vigilance group; of them, 17% were in the high risk group; b) factor of early childhood – about 25 % of students were in the high risk group; c) lifestyle factor – up to 30% of students were in the high risk group. These rates were reliably 2-3 times higher than those of students with normal health and mental development.³⁷

Therefore, mental and physical health problems in students with disabilities may be one of the main reasons for their failure to percept the learning material offered in the general education process.

The monitoring of the online lessons showed that teachers, understanding the difficulty of learning the material through students with health problems, knowingly give them simpler tasks compared to normal students. In particular, at an English lesson, one of the students was given the task to copy the letters of the alphabet in order into a notebook while other students were learning more complicated material. Students with health nosologies often disturb the discipline (68% of the time) even during an online conference, so teachers do homework to entertain them.

Teachers have argued that students with nosologies are much slower and with inherent specificity in answering questions, slowing the progress of others.³⁸⁻⁴⁰

An approach clearly illustrated above is certainly not conducive to the normal development of a child with special needs. This indicates that inclusive online education in a comprehensive secondary school should be approached with caution, and only include groups of students who are close to the age norm, such as students with visual impairments. For students who cannot manage with the general

curriculum, such as those with mental disabilities or autism, education in special schools or in separate individual classes is desirable. Physical education classes also have their specifics. Here, visually and musculoskeletally impaired students are not able to learn the material normally.⁴¹Hearing impaired students have trouble with music classes. Students with speech disorders learn poorly relative to their healthy peers in their mother tongue and foreign language.⁴²⁻⁴⁵

However, in the context of inclusive online education, these limitations can be removed if all the necessary conditions for the child's comprehensive education are created.⁴⁶The three categories of students with speech, vision and mental retardation were characterised by non-acute learning disabilities. Students with visual impairment had a level of 0.1-0.4 vision and could use books with flatprint, in students with speech impairment the latter was characterized by third level of underdevelopment, i.e., this pathology was not clearly pronounced. It is important to note that the group of successful students may also include students with musculoskeletal disorders, hearing disorders and autism. Their academic performance will depend to a large extent on early correction followed by full academic achievement. Yet these students require special attention from teachers. All of these groups, with the exception of mentally retarded students, have no significant cognitive impairment. Therefore, they can learn fully as well with healthy peers in some conditions.

Conclusions

The number of students with a normal level of psychophysical development in the group with visual impairments is 1.3 times higher compared to students with a normal level of speech development. Among the speech impaired group, this difference was 1.7 times ($p \leq 0.05$). Among students with health nosology, the most promising were students with a visual impairment. The number of good-performing students are 1.5 times higher compared to outstanding students ($p \leq 0.05$), and the number of low-performing students is 4.9 times less compared to good-performing peers ($p \leq 0.001$). The number of outstanding students in the group with visual impairments exceeds that number even in the control group by 1.5 times ($p \leq 0.05$). Mass inclusion of students with special abilities in schools by implementing inclusive education program does not give unambiguous results. Only a small proportion of such students belonging to the three health nosology

groups are able to learn the curriculum material in the same time and to the same extent as students from the control group. These students are visually impaired, to a lesser extent mentally retarded, and have musculoskeletal disorders. For the remaining groups of students with disabilities, early correction with subsequent creation of special conditions to stimulate their educational needs with the participation of teachers-defectologists is desirable. The high performance of visually and motor impaired students suggests that this group is quite promising for comprehensive education in universities, as well as for inclusive education.

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Data gathering and idea owner of this study: OK and ZS

Study design: NS, ZS, and VS

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Writing and submitting manuscript: OK, NS, ZS, and VS

Editing and approval of final draft: OK, NS, ZS, and VS

References

1. Fereday J, Oster C and Darbyshire P. Partnership in practices: What parents of a disabled child want from a generic health professional in Australia. *Health Soc Care Community* 2010;**18**(6):624-632. <https://doi.org/10.1111/j.1365-2524.2010.00935.x>
2. Brehaut JC, Garner RE, Miller AR, Lach LM, Klassen AF, Rosenbaum PL, et al. Changes over time in the health of caregivers of students with health problems: Growth-curve findings from a 10-year Canadian population-based study. *Am J Public Health* 2011;**101**(12):2308-2316. <https://doi.org/10.2105/AJPH.2011.300298>
3. Matthews EJ, Gelech J, Graumans R, Desjardins M and Gélinas I. Mediating a Fragmented System: Partnership Experiences of Parents of Students with Neurodevelopmental and Neuromuscular Disabilities. *J Dev Phys Disabil* 2020;**1**:1-20. <https://doi.org/10.1007/s10882-020-09750-0>
4. Chaplenko AA, Monogarova OV and Oskolok KV. Digital Colorimetry of Non-steroidal Anti-inflammatory Drugs: Identification Using Principal Component Method. *Drug Devel Registration* 2020;**9**(1):55-59. <https://doi.org/10.33380/2305-2066-2020-9-1-55-59>
5. Aston M, Breau L and MacLeod E. Understanding the

- importance of relationships: Perspective of students with intellectual disabilities, their parents, and nurses in Canada. *J Intellect Disabil* 2014;**18**(3):221-237. <https://doi.org/10.1177/1744629514538877>
6. Dillenburger K, Jordan J, McKerr L and Keenan M. The millennium child with autism: Early childhood trajectories for health, education and economic wellbeing. *Dev Neurorehabil* 2015;**18**(1):37-46. <https://doi.org/10.3109/17518423.2014.964378>
 7. World Health Organization. WHO global disability action plan 2014-2020: Better health for all people with disability. Geneva: World Health Organization, 2015.
 8. KlimovaTV. The formation of a healthy life style in students of senior preschool age with disabilities in the implementation of federal state requirements. Scientific Watch. *Korean pedagogy* 2012;**1**:114-119.
 9. Hayton J, Wall K and Dimitriou D. Get your coat: examining the development of independent dressing skills in young students with visual impairment, Down syndrome and typically developing students. *Int J Incl Educ* 2020;**24**(3):235-250. <https://doi.org/10.1080/13603116.2018.1456568>
 10. Hewett R, Douglas G, McLinden M and Keil S. Balancing inclusive design, adjustments and personal agency: progressive mutual accommodations and the experiences of university students with vision impairment in the United Kingdom. *Int J Incl Educ* 2020;**24**(7):754-770. <https://doi.org/10.1080/13603116.2018.1492637>
 11. Hiago C and Sade T. The learning autonomy of the visually impaired students in language education and language acquisition. *Journal of Special and Inclusive Education* 2020;**13**(1), 27-49 <https://doi.org/10.35542/osf.io/4wy9x>
 12. Davis P and Hopwood V. Including students with a visual impairment in the mainstream primary school classroom. *J Res Spec Educ Needs* 2002;**2**(3):1. <https://doi.org/10.1111/j.1471-3802.2002.00174.x>
 13. Salam A, Yaman MN, Hashim R, Suhaimi FH, Zakaria Z and Mohamad N. Analysis of Problems Posed in Problem Based Learning Cases: Nature, Sequence of Disclosure and Connectivity with Learning Issues. *Bangladesh J Med Sci.* 2018;**17**(3):417-423. <https://doi.org/10.3329/bjms.v17i3.36997>
 14. Lynch P, McCall S, Douglas G, McLinden M, Mogesa B, Mwaura M, et al. Inclusive educational practices in Kenya: Evidencing practice of itinerant teachers who work with students with visual impairment in local mainstream schools. *Int J Educ Dev* 2011;**31**(5):478-488. <https://doi.org/10.1016/j.ijedudev.2010.08.006>
 15. Burns D. Deepening and scaling participatory research with the poorest and most marginalised. *Eur J Oper Res* 2018;**268**(3):865-874. <https://doi.org/10.1016/j.ejor.2017.11.025>
 16. Baglieri S. Disability Studies in the Inclusive Classroom: Critical Practices for Creating Least Restrictive Attitudes. New York: Routledge, 2012. <https://doi.org/10.4324/9780203837399>
 17. Sharma U, Loreman T and Forlin C. Measuring Teacher Efficacy to Implement Inclusive Practices. *J Res Spec Educ Needs* 2011;**12**(1):773-785. <https://doi.org/10.1111/j.1471-3802.2011.01200.x>
 18. Aringazina R, Zharmakhanova G, Kurmanalina G, Bekkuzhin A and Kurmanalin B. Diagnostic Relevance of Ferrokinetic Laboratory Markers in Anemic Pregnant Women. *Gyn. Obst. Invest.* 2020;**85**(5):420-427. <https://doi.org/10.1159/000511018>
 19. Bauml M. Beginning Primary Teachers' Experiences with Curriculum Guides and Pacing Calendars for Math and Science Instruction. *J Res Child Educ* 2015;**29**(3):390-409. <https://doi.org/10.1080/02568543.2015.1040565>
 20. Begum FA, Rahman ASMMH and Islam MS. Socio-demographic status of Children with Autism Spectrum Disorder and their Parents in Dhaka city. *IJHHS* 2020;**4**(1):36-40. <https://doi.org/10.31344/ijhhs.v4i1.117>
 21. Botha J and Kourkoutas E. A Community of Practice as an Inclusive Model to Support Students with Social, Emotional and Behavioural Difficulties in School Contexts. *Int J Incl Educ* 2016;**20**(7):784-799. <https://doi.org/10.1080/13603116.2015.1111448>
 22. Brown TM and Rodriguez LF. Collaborating with Urban Youth to Address Gaps in Teacher Education. *Teach Educ Q* 2017;**44**(3):75-92.
 23. Creswell J. Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research. 5th ed. Upper Saddle River, NJ: Pearson, 2015.
 24. Danforth S. Becoming a Great Inclusive Educator. New York: Peter Lang, 2014. <https://doi.org/10.3726/978-1-4539-1277-5>
 25. Kim NO and Ivanovskaja EA. Validation of Method for Mercury Impurities Determination in Protamine Sulfate by Stripping Voltammetry *Drug Devel Registration* 2020;**9**(1):60-64 <https://doi.org/10.33380/2305-2066-2020-9-1-60-64>
 26. Alipour E, Alimohammady F, Yumashev A and Maselena A. Fullerene C60 containing porphyrin-like metal center as drug delivery system for ibuprofen drug. *J Molec Model* 2019;**26**(1):1-8. <https://doi.org/10.1007/s00894-019-4267-1>
 27. Rashid A, Rashid MR, Yaman MN and Mohamad I. Teaching Medicine Online During the COVID-19 Pandemic: A Malaysian Perspective. *BJMS* 2020;**19**:77-81. <https://doi.org/10.3329/bjms.v19i0.48170>
 28. Medvedev YV, Kolganova MA, Sas OA, Komarov TN, Fisher EN, Shohin IE, et al. Immunogenicity

- Assessment of Pegfilgrastim in Patients with Breast Cancer. *Drug Devel Registration* 2020;**9**(2):140-144. <https://doi.org/10.33380/2305-2066-2020-9-2-140-144>
29. Masino S and Zarazúa MN. What works to improve the quality of student learning in developing countries? *Int J Educ Dev* 2016;**48**:53-65. <https://doi.org/10.1016/j.ijedudev.2015.11.012>
 30. Melie S, William G, Susanto S and Nanda DS. Foreign language training for visually impaired students in South East Asian countries. OSF Preprints, 2020. <https://doi.org/10.31219/osf.io/vjrng>
 31. Zhou M. The roles of social anxiety, autonomy, and learning orientation in second language learning: A structural equation modeling analysis. *System* 2016;**63**:89-100. <https://doi.org/10.1016/j.system.2016.09.001>
 32. Huang YP, Chen SL and Tsai SW. Father's experiences of involvement in the daily care of their child with developmental disability in a Chinese context. *J Clin Nurs* 2012;**21**(21-22):3287-3296. <https://doi.org/10.1111/j.1365-2702.2012.04142.x>
 33. Vasilopoulou E and Nisbet J. The quality of life of parents of students with autism spectrum disorder: A systematic review. *Res Autism Spectr Disord* 2016;**23**:36-49. <https://doi.org/10.1016/j.rasd.2015.11.008>
 34. Bray L, Carter B, Sanders C, Blake L and Keegan K. Parent-to-parent peer support for parents of students with a disability: A mixed method study. *Patient Educ Couns* 2017;**100**:1537-1543. <https://doi.org/10.1016/j.pec.2017.03.004>
 35. Burton P, Chen K, Lethbridge L and Phipps S. Child health and parental paid work. *Rev Econ Househ* 2017;**15**(2):597-620. <https://doi.org/10.1007/s11150-014-9251-z>
 36. Ashari NSM, Yasin MAM, Sanusi SNFM and Shafei MN. Comparing Sociodemographic Predisposing Factors in Major Depressive Disorders (MDD) and Controls in Kelantan, Malaysia. *IJHHS* 2019;**3**(2):74-79. <https://doi.org/10.31344/ijhhs.v3i2.80>
 37. Gelech J, Desjardins M, Matthews E and Graumans R. Why do working relationships not change? The need for a new approach to disability partnership research and social change. *Disabil Soc* 2017;**32**(2):176-192. <https://doi.org/10.1080/09687599.2017.1281104>
 38. Savage J. Participative observation: Standing in the shoes of others. *Qual Health Res* 2013;**10**(3):324-339. <https://doi.org/10.1177/104973200129118471>
 39. Susanto S and Nanda DS. Teaching and learning English for visually impaired students: an ethnographic case study. *English Review: Journal of English Education* 2018;**7**(1):83-92. <https://doi.org/10.25134/erjee.v7i1.1530>
 40. Susanto S. A case study of prosodic phrasal grouping and intonational prominence in language acquisition. *English Review: Journal of English Education* 2016;**4**(2):289-295. <https://doi.org/10.25134/erjee.v4i2.342>
 41. Whitburn B. Accessibility and autonomy preconditions to 'our' inclusion: A grounded theory study of the experiences of secondary students with vision impairment. *J Res Spec Educ Needs* 2014;**14**(1):3-15. <https://doi.org/10.1111/1471-3802.12014>
 42. Roberts J and Simpson K. A review of research into stakeholder perspectives on inclusion of students with autism in mainstream schools. *Int J Incl Educ* 2016;**20**(10):1084-1096. <https://doi.org/10.1080/13603116.2016.1145267>
 43. Rouse M. A Role for Teachers and Teacher Education in Developing Inclusive Practice. In Etherington M, ed. *What teachers Need to Know: Topics in Diversity and Inclusion*. Eugene, Oregon: Wipf and Stock 2017:19-35.
 44. Mmbuji ZS. The implementation of the national inclusive education strategy in primary schools in Morogoro Municipality, Tanzania. University of Tanzania, 2017.
 45. McCombe S. Descriptive research. Scribbr, 2019. <https://www.scribbr.com/methodology/descriptive-research/>
 46. Kabwos CR, Moige NO and Omwenga EN. Availability and adequacy of learning resources for implementing inclusive education in public preschools in Belgut sub-county, Kenya. *Eur J Educ Stud* 2020;**6**(11):336-345