

AN OVERVIEW ON SEXUAL BEHAVIOURS AMONG ADOLESCENT WITH SPECIAL NEEDS: A SCOPING REVIEW

Ibrahim ZA^{1,2}, A Rahman P¹, and Psychouli P³.

¹Centre for Occupational Therapy Studies, Faculty of Health Sciences, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor

²WQ Park, Health and Rehabilitation Centre, Bandar Baru Permas Jaya, 81750 Johor Bahru

³Occupational Therapy and Neurorehabilitation, Department of Health Sciences, European University Cyprus, 6 Diogenous Str., Egkomi 2404, Nicosia, Cyprus

Correspondence:

Padma A Rahman,
Centre for Occupational Therapy Studies,
Faculty of Health Sciences,
Universiti Teknologi MARA,
42300 Puncak Alam, Selangor
Email: padma553@uitm.edu.my

Abstract

Sexuality issues are rarely discussed in Malaysia and are considered taboo and culturally inappropriate. Sexuality is divided into three components; sexual behaviour, biological influences, and making sense of sexuality. Sexual behaviour is classed into non-coital sexual behaviour (e.g., fantasy, masturbation) and sexual intercourse (e.g., partners, sexual coercion). Note that sexual behaviour is individuals' experiences of sexual feeling or expression, while any sexual activity that raises the possibility of getting pregnant or contracting a sexually transmitted diseases (STD) is referred to as risky sexual behaviour (RSB). This scoping review is conducted to determine sexual behaviours among adolescents with special needs, to investigate factors of their sexual behaviours, and to determine the need for sexuality education and the potential roles of occupational therapists (OTs) in managing their behaviours. The author independently searched through databases, for instance, Google Scholar, Science Direct, Web of Science, as well as PubMed, and 17 studies, met the criteria and were reviewed. Masturbation, inappropriate gestures and exhibitionism were common sexual behaviours among adolescents with special needs. Such behaviours were caused by a lack of sexual understanding, sexual knowledge and awareness, and pornography addiction. This review contributes to developing interventions that solve challenging sexual behaviour, rule OT roles in sexuality and guide parents with obligatory educational support in delivering sexual knowledge to their children.

Keywords: Sexual Behaviour, Sexual Education, Adolescents with Special Needs, Occupational Therapy

Introduction

Sexuality is divided into three components; sexual behaviour, biological influences, and making sense of sexuality. The first component is sexual behaviour which is classed into non-coital sexual behaviour (e.g., fantasy, masturbation) and sexual intercourse (e.g., partners, sexual coercion). Other than that, sexuality components rarely highlighted are biological influences (e.g., puberty, hygiene, understanding privacy) and making sense of sexuality (e.g., sexual identity, love, desire, and situations of sexual possibility).

Adolescents with special needs are more exposed to harmful sexual experiences; for example, abusive relationships, sexual coercion, and sexual exploitation. Holmes et al. (1) stated that common concerns among parents regarding the sexual behaviour of their children with special needs are; non-sexual behaviour would misinterpret as sexual, their children would be sexually

abused or exploited, their children experience an unwanted pregnancy, their children contract a STD, and their children would not have the opportunity to enjoy a sexual relationship.

Generally, factors such as socio-cultural, family, peers, media, psychological and behavioural influence the sexuality attitudes and adaptation of adolescents with special needs. The lack of sexual topics in the school curriculum also leads to a lack of sexual knowledge among the students. Note that the knowledge and understanding of sexuality are crucial for adolescents with special needs to make them more alert with sexual awareness and safety. For example, differentiating between private and public spaces, detecting harmful sexual situations, and differentiating between good and bad touches. However, delivering sex education to individuals with special needs, such as Autism, Attention-Deficit/Hyperactivity Disorder (ADHD), and intellectual disability (ID), involves unique

approaches because they are physically, effectively, and cognitively distinct from normal individuals. To comply with these efforts, parents, teachers, and professionals such as paediatricians and OTs play important roles in reaching the same goal, which is to deliver effective sexual education to adolescents with special needs.

However, there is a lack of research and studies on the sexual behaviour among adolescents with special needs and the significance with respect to sexual education as well as adequate technique of sexual education delivery towards them. Therefore, this scoping review provides an overview and theoretical explanations of sexual behaviour problems in adolescents with special needs, factors that lead to their sexual behaviour, and the need for sexuality education and OT involvement in managing sexual behaviour.

Materials and Methods

Search strategy

Literature searches were conducted to find published studies on sexuality issues among adolescents with special needs. Keywords searches were performed in chosen databases, for instance, Google Scholar, Science Direct, Web of Science as well as PubMed engines. A combination of relevant keywords was used: sexual behaviour, sexuality issues, adolescents, adolescents with special needs, sexual education, and occupational therapy. Boolean operators 'OR', '*', and 'AND' were also used to locate potentially related studies. Table 1 contains search techniques across the databases.

Table 1: Databases and search strategies employed

Databases	Search strategy January 2022 to May 2022
PubMed	("sexual behaviour" OR "behaviour" OR "sexuality issues" OR "sexual education") AND ("adolescents" OR "adolescents with special needs") AND ("occupational therapist roles" OR "occupational therapy intervention")
Web of Science	("sexual behaviour" OR "behaviour" OR "sexuality issues" OR "sexual education") AND ("adolescents" OR "adolescents with special needs") AND ("occupational therapist roles" OR "occupational therapy intervention")
Science Direct	("sexual behaviour" OR "behaviour" OR "sexuality issues" OR "sexual education") AND ("adolescents" OR "adolescents with special needs") AND ("occupational therapist roles" OR "occupational therapy intervention")
Google Scholar	("sexual behaviour" OR "behaviour" OR "sexuality issues" OR "sexual education") AND ("adolescents" OR "adolescents with special needs") AND ("occupational therapist roles" OR "occupational therapy intervention")

Review criteria

The inclusion criteria are: (a) studies with experimental design: exploratory studies, pilot studies, randomised controlled trials, case reports, quasi-experimental studies as well as non-randomised controlled trials; (b) topic of sexual behaviours consisting of study with a population with a diagnosis of disabilities classed as hearing impairment, visual impairment, speech impairment, physical disabilities, learning disabilities (e.g., Global Developmental Delay (GDD), Down Syndrome, ADHD, Autism, IDs, specific learning disabilities: Dyslexia, Dyscalculia, Dysgraphia), mental disabilities, and multiple disabilities; (c) topic other than sexual behaviour consist of study related with varying population.

The study omitted the criteria given as follows: (a) those studies that are not published in Malay and/or English; (b) unavailability of full-text; and (c) scoping and systematic review study design. After considering the exclusion and inclusion criteria with respect to this review, a total of 17 publications highlighting the issues of sexual behaviours as a primary or secondary outcome variable, published from 2016-2022, were used in this review.

Study selection

Records identified through database searching were screened utilising the reference management software Mendeley. Duplicate studies were eliminated, and the rest were screened according to their title and abstract. Subsequently, full texts were evaluated to search for articles with appropriate exclusion and inclusion criteria. After employing these criteria, 17 studies remained. The process of selection is illustrated in Figure 1. Of the included studies, 9 of the studies were related to sexual education (1, 2, 11, 12, 13, 14, 15, 16, 17), three of the studies related to factors of sexual behaviours (7, 8, 9), and four studies on sexual behaviours (4, 5, 6, 10). Two studies mentioned OT roles in their discussion (16, 17).

Data extraction and synthesis

To extract important information regarding each study, Table 2 was elaborated to the summarised main characteristic of the studies; (a) authors, (b) year of publication, (c) type of study, (d) objectives, (e) participants, (f) outcome measure, (g) results, and (h) conclusion. On the other hand, Table 3 summarises the characteristics concerning bias risk with respect to the studies. The scoping review aims to provide a wide literature overview regardless of evidence. Hence, the articles' quality was not evaluated.

Results

Search results

Note that 17 studies were included in this review. The common reason for the study that was excluded during the screening process was that most of the articles were review papers. Hence, the data was extracted and

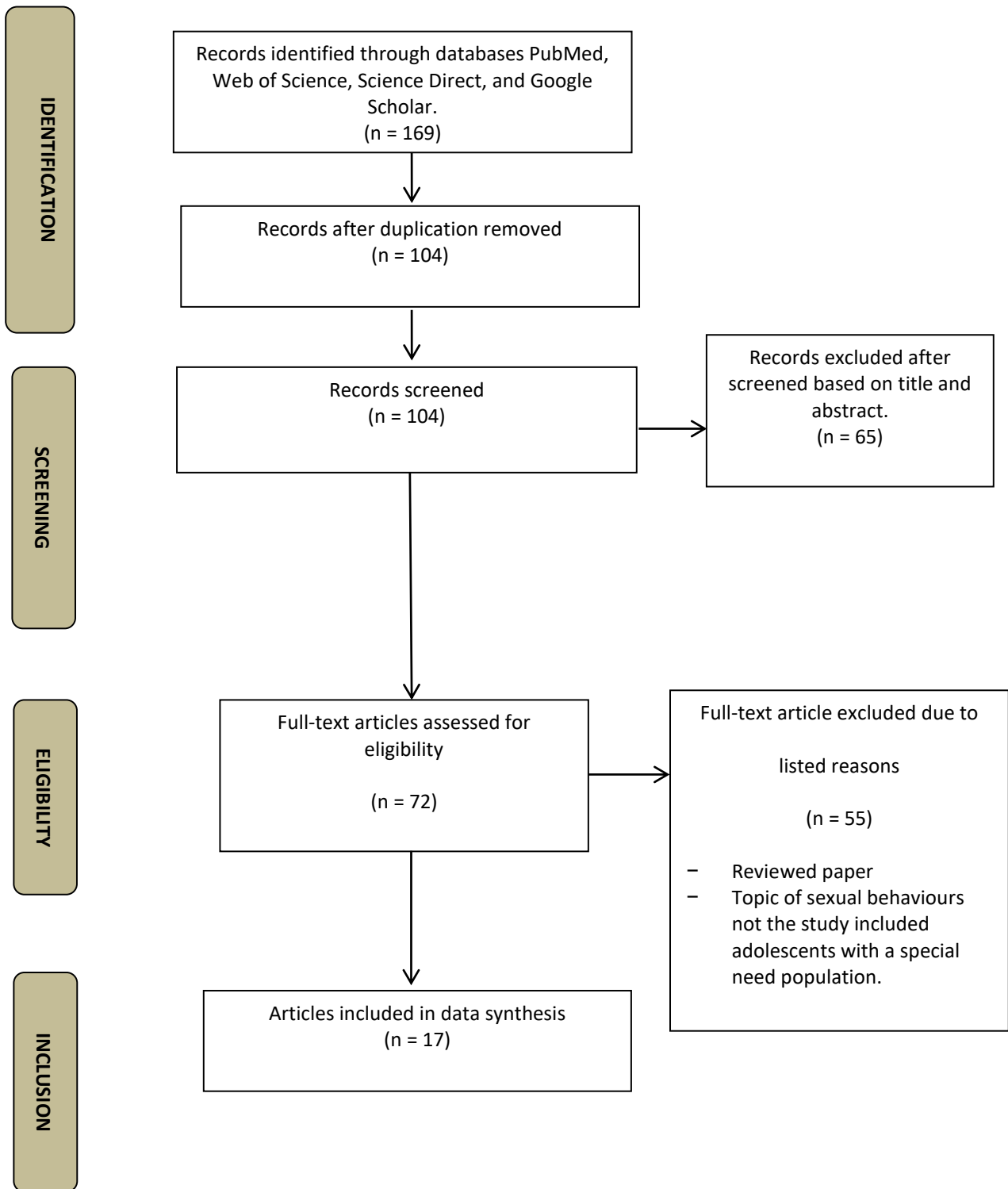


Figure 1: PRISMA flow diagram.

Table 2: Main characteristics of the included studies

Author (Year)	Study Design	Objectives	Participants	Outcome measures	Results	Conclusion
Holmes, Himle & Strassberg (2019) (1)	Cross-sectional study	To investigate how parents having daughters with autism encourage healthy sexual development and relationship formation during their teenage years.	One hundred forty-one parents have autistic daughters.	Online Sexuality Survey, Parent Sexual Education Inventory, Social Responsiveness Scale—2nd Edition (Parent report) (SRS-2).	The findings of this research signify that parents may gain more guidance as well as resources as they talk to girls regarding sexual health, relationships, including consent.	There is a specific requirement for research to incorporate people from various ethnic/racial backgrounds to understand cultural differences in the engagement of parents in activities to support sexual self-determination.
Ihwani et al. (2016) (2)	Randomised control trial	To explain Malaysian teachers' readiness to teach the sex education elements relying on four aspects: attitudes, skills, knowledge as well as personality.	Six hundred Islamic education teachers.	Self-administered questionnaire to assess the level of the teachers' readiness.	Their readiness level in teaching sexual education elements was at a high level.	There were substantial influences in schools' location, gender, academic qualification as well as teaching experiences on teachers' readiness. However, there were no substantial influences on teachers' skills as well as schools' location affects teachers' personalities.
Ey & McInnes (2018) (3)	Cross-sectional study	To gain a better understanding of what behaviours children are demonstrating in these settings.	One hundred and seven Australian educators from preschools, care organisations, as well as independent, government, and Catholic primary schools.	Their knowledge of problematic sexual behaviour in children, their experiences with it, and their management strategies.	Findings showed that 40.8% of educators had observed children showing problematic sexual behaviour in their educational setting; sexually harassing other children, children physically acting out sexually with other children, individual displays of sexual behaviour, as well as verbally attempting to coerce other children to participate in sexual behaviour.	There is a necessity for child education, educator training, as well as support services to allow an early prevention and intervention strategy to support the well-being of children.
Darak et al. (2022) (4)	Retrospective study	To understand the dynamic process with regard to the decision-making of young people by adopting a life course perspective.	One thousand two hundred forty bachelor men and women ranging from 20–29-year-old living in Pune.	All the relationships starting at age 10 were plotted on a calendar, and structured questionnaires were employed to gather data on the predictor variables.	Here, 76% of the participants recorded being in at least one relationship; more women, in comparison to men, ever had a relationship. The median age for starting the first relationship was 18 for men and 17 years for women.	The results clearly imply that in order to understand and manage young people's vulnerabilities throughout their lives, intimate relationships should be viewed from a developmental perspective.

Table 2: Main characteristics of the included studies (continued)

Author (Year)	Study Design	Objectives	Participants	Outcome measures	Results	Conclusion
Dewinter, De Graaf & Begeer (2017) (5)	Cross-sectional study	To compare romantic relationships as well as sexual orientation experience in adults and adolescents with general population peers and autism spectrum disorder (ASD).	Adults and adolescents with ASD of age more than 15 years old registered in the Netherlands Autism Register (NAR) (n = 675) and general population peers (n = 8064).	Gender at birth, sexual orientation, gender identity, duration of the relationship, relationship status and evaluation of relationship status, living situation, as well as whether the partner has (or is suspected of having) ASD.	In comparison to general population peers, more people with ASD, particularly women, reported sexual attraction to both opposite- and same-sex partners and reported gender non-conforming feelings. Approximately half of the participants having ASD were in a relationship (heterosexual in most cases), and the majority lived together with their partner.	Attention to sexual diversity and gender identity in clinical work and education with people having ASD is advised.
Xu, Norton & Rahman (2020) (6)	Longitudinal study	To examine adolescent sexual behaviour patterns and the consistency between sexual behaviour and sexual orientation.	Five thousand one hundred fifty young people from the Avon Longitudinal Study of Parents and Children.	Sexual orientation was evaluated employing a 5-point scale of sexual attraction at 13.5 years. The Adolescent Sexual Activity Index was employed to evaluate 14 sexual activities at the ages of 13.5 and 15.5.	Four subgroups of adolescent sexual behaviours were identified at 13.5 years; (1) "high-intensity sexual behaviours exclusively with other sex, no same-sex intimacy" group (3.87%); (2) "moderate-intensity sexual behaviours exclusively with other-sex, no same-sex intimacy" group (16.57%); (3) "low-intensity sexual behaviours exclusively with other-sex, no same-sex intimacy" group (34.21%); as well as (4) "no sexual behaviour" group (45.35%). There were five subgroups at 15.5 years, with a new "high-intensity sexual behaviours, some same-sex intimacy" subgroup (5.57%) as well as four of them (23.42%, 18.37%, 28.12%, and 24.52%, accordingly) being regarded similarly to those at 13.5 years.	While there was only moderate consistency between same-sex intimacy and same-sex attraction for boys and low consistency for girls, both girls and boys who were in groups without same-sex intimacy were primarily attracted to the other sex.

Table 2: Main characteristics of the included studies (continued)

Author (Year)	Study Design	Objectives	Participants	Outcome measures	Results	Conclusion
McKibbin, Humphreys, Hamilton (2017) (7)	Case study	To include the knowledge of young people who have committed sexual assault.	In Victoria, Australia, a treatment program for harmful sexual behaviour has been successfully completed by 14 young people and 6 treatment-providing workers.	Five major thematic categories emerged: learning about sex, age, and consent; dealing with childhood victimisation; receiving supportive responses from others; having safe and respectful relationships; as well as conceptualising self as changing over time.	The study determined three opportunities for prevention, which involved acting on behalf of young people and children to redress their victimisation experiences, reform their sexuality education, as well as facilitate their management of pornography.	The development of strategies for preventing children's and young people's harmful sexual behaviour is desperately needed.
Adimora, Akaneme, Aye (2018) (8)	Cross-sectional study	To examine the predictive power of peer pressure and home environment on RSB and disruptive behaviour of adolescents in secondary school in Enugu State, Nigeria.	Thirty-one thousand six hundred eighty senior secondary class two adolescents in 285 secondary schools in Enugu State, Nigeria, in the 2015/2016 academic session.	An observation schedule, structured interview as well as a well-structured questionnaire were employed to elicit information on adolescents' disruptive sexual behaviour; whilst the RSB was established relying on adolescents' history of sexual behaviour in the past 12 months.	Adolescents with unstimulated and chaotic home environments showed disruptive behaviours, while adolescents that are engaged with negative peer pressure prominently exert disruptive and RSB.	An unstimulated home environment, as well as a negative peer group, may consequently interact to predispose these adolescents to disruptive behaviour and RSB.
Haftu et al. (2019) (9)	Cross-sectional study	To evaluate older siblings' impact on the sexual behaviour of high school adolescents in Mekelle, northern Ethiopia, in 2017–2018.	A total of two hundred and eighty-five adolescents who had sex were sampled randomly from chosen schools.	Direct markers of adolescents' and their older siblings' sexual behaviour, communication, sibling modelling, as well as intimacy.	Perceiving older siblings' sexual behaviour as risky enhanced adolescents' likelihood of engaging in RSB.	Families should thus be aware that older siblings might influence their younger siblings' behaviour, engage the elders in family planning, as well as assign them the responsibility of monitoring the younger siblings.
Brkic-Jovanovic et al. (2021) (10)	Cross-sectional study	To establish the absence or presence of sexual activity in adults with ID residing in institutional housing, including the structure and level of their sexuality knowledge, their sexual assertiveness, as well as preparedness to react in a sexually dangerous situation.	One hundred participants with ID reside in institutional housing.	General Sexual Knowledge Questionnaire, What-if test and Hulbert index of sexual assertiveness	They had limited knowledge about pregnancy, contraception, as well as STDs. However, those who identified as female and those who had engaged in sexual intercourse were more confident and knowledgeable about sexuality.	Additional information on sexuality is required, including support in learning to express their own desires and to deal with unwanted sexual activity.

Table 2: Main characteristics of the included studies (continued)

Author (Year)	Study Design	Objectives	Participants	Outcome measures	Results	Conclusion
Schaff and Mohamad (2019) (11)	Grounded theory	To examine the teaching approaches to teach cognitive as well as social-behavioural aspects with respect to sexuality education.	Three Special Education teachers from a government secondary school that offers <i>Program Pendidikan Khas Integrasi</i> for adolescents aged from 13 to 19 who have IDs; in a semi-rural town in Sarawak.	The data collection techniques employed in this research were document review, in-depth interviews, as well as participant observation.	The use of concrete materials, modelling strategies as well as constant repetition help adolescents understand and retain information. Multimedia and storytelling techniques help students pay attention and focus in class. Intriguingly, the language employed in content delivery and classroom dialogues has an impact on adolescents' sexual understanding.	Modelling and repetition are key in presenting content, and the teachers employed their personal good judgment and awareness in detecting and addressing learning moments as well as environments with these intellectually disabled learners.
Pariera (2016) (12)	Randomised control trial	To explicate what prompts sexual conversations and what prevents them from doing it more often.	A random sample of U.S. mothers and fathers (N = 186)	Annenberg Health Communication Survey	Regardless of the child's age, participants said that believing their child is too young is a significant communication barrier.	Interventions might need to concentrate on teaching parents how to react to unanticipated questions from their children.
Mackin et al. (2016) (13)	Case study	To describe parent perceptions of sexual education needs of their children aged 14–20 with an ASD diagnosis. To determine parent-preferred mechanisms of delivery for tailored educational intervention strategies.	A total of 15 parents (5 participated in 1 focus group and 10 completed individual interviews)	Parent's perceptions and mechanisms with regard to education delivery.	The preferred topics were those that would promote healthy relationships, offer some measure of self-protection, as well as lessen the negative effects of sexual activity.	Our results emphasise the necessity of greater research and improved clinical services to guarantee that adolescents with ASD have access to the knowledge they need, can take precautions, as well as have the best chance of developing healthy sexuality as they enter adulthood.
Stein, Kohut & Dillenburger (2017) (14)	Cross-sectional study	To assess parental beliefs of sexuality education needs of children with and without disabilities.	A total of sixty-two parents; 30 parents completed the survey from the parent perspective of a child with special needs, while thirty-two parents completed the survey for a normal developmental child.	Parents' beliefs on the possibility that their child would engage in both non-consensual and consensual sex, the necessity for sexuality education, the types of sexuality education they favour for their child, including their preferred methods of obtaining sexuality education information.	Compared to parents of children without IDD, parents of children with IDD are less likely to think that their children would engage in non-consensual or consensual sex before the age of 18.	A crucial area of intervention for healthcare providers, mental health professionals, and sexuality educators is giving parents the knowledge and resources they need to help their children with IDD in the sex education area.

Table 2: Main characteristics of the included studies (continued)

Author (Year)	Study Design	Objectives	Participants	Outcome measures	Results	Conclusion
Ang & Lee (2016) (15)	Cross-sectional study	To identify special education teachers' acceptance of sexuality education content for secondary school students with learning disabilities.	Three hundred and fourteen heads of the integrated program for students with learning disabilities	A survey evaluated the appropriateness of forty-two sex education topics for students with learning disabilities.	Three different dimensions—human development and interpersonal skill, sexual behaviour, as well as social-sexual health, society, and culture—were identified via an analysis of principal components.	The acceptance of sex education content was influenced by cultural factors, and teachers should receive additional exposure and support in order to teach topics that are considered more delicate in conservative societies.
Krantz et al. (2016) (16)	Grounded theory	To describe the perspectives of high school educators regarding how adolescents with developmental disabilities are taught about sexuality and dating.	Six high school special education team members worked with or provided services to students with developmental delays.	Semi-structured interviews lasting between 45 and 90 min each. The interviews were audio-recorded and transcribed verbatim.	Three major themes emerged: (a) the sexuality of each student is unique, (b) parents and teachers were unable to evaluate what needed to be done, as well as (c) a potential role for OT.	Given their specialisation, OT practitioners would be well-suited to meet the requirements discovered via this research.
Zhagan (2019) (17)	Cross-sectional study	To identify the understanding of reproductive health among parents and female adolescents having ASDs	Twenty-two parents, as well as twenty-two female adolescents, have ASDs in Kuala Lumpur, Malaysia.	Parent Understanding Questionnaire on Reproductive Health as well as Understanding Female Adolescent Reproductive Health on the ASDs	There was a substantial relationship between awareness and understanding with respect to reproductive health among parents and female adolescents, but no relationship between time spent with the child as well as understanding with respect to reproductive health among parents and female adolescents having ASDs.	Special Education, as well as OT programmes on sexual and reproductive health, should be included in the ADL skills for individuals having ASDs.

Table 3: Characteristics related to the risk of bias.

Authors (Year)	Main limitation	Finding sources	Declaration of interest
Holmes, Himle & Strassberg (2019) (1)	The findings might not apply to all parents of youth with autism. Secondly, the binary conceptualisation of gender as male or female serves as the foundation for this research. Thirdly, the quantity of subjects related to relationships and sexuality presented does not take constructs identified as crucial in Family Sexual Communication into consideration. Fourth, less accurate owing to information gathered through the maternal perspective rather than the perception of the adolescents.	The McMorris Family Foundation, via the Children's Hospital of Philadelphia Center for Autism Research.	All authors declared to have no conflicts of interest.
Ihwani et al. (2016) (2)	Not stated	Not stated	Not stated

Table 3: Characteristics related to the risk of bias (continued)

Authors (Year)	Main limitation	Finding sources	Declaration of interest
Ey & McInnes (2017) (3)	Given the sensitive topic of the subject, there was little chance of reaching a sizable number of instructors and educators. Secondly, a separate replication of the study in each environment may provide researchers with a better understanding of the behaviours being seen in each. Subsequently, the characteristics of problematic sexual behaviour in children are not universally agreed upon.	Not stated	Not stated
Darak et al. (2022) (4)	The study's purposive sample, which was mostly drawn from an urban middle-class population, restricts the generalizability of the results. Secondly, since everyone involved was a different age when the interviews were conducted, their life trajectories were incomplete. Another drawback of this retrospective study is recollection bias.	This study relies on the research "Youth in Transition", financially funded by Prayas (Health Group).	All authors declared to have no conflicts of interest.
Dewinter, De Graaf & Begeer. (2017) (5)	Not stated	The authors did not obtain funding for this research. One of the authors' institutes gained general funding from the Dutch Ministry of Health, Welfare and Sport.	All authors declared to have no conflicts of interest.
Xu, Norton & Rahman (2020) (6)	Girls and boys who identify as non-heterosexual have limited sample sizes. Secondly, adolescents could underreport their sexual orientations. Thirdly, the authors were unable to test for any variations related to ethnicity, immigration status, or the geographic division between rural and urban areas.	There was no funding for this research.	All authors declared to have no conflicts of interest.
McKibbin, Humphreys, Hamilton (2017) (7)	Most qualitative studies have small sample sizes. Therefore, it is impossible to generalise their findings to the whole population.	A Strategic Australian Postgraduate Award from the Melbourne Social Equity Institute provided funding for this study, which was carried out as part of a PhD project.	Not stated
Adimora, Akaneme, Aye (2018) (8)	Not stated	Not stated	No conflicts of interest were declared by all authors.
Haftu et al. (2019) (9)	Not stated	There was no funding for this research.	No conflicts of interest were declared by all authors.
Brkic-Jovanovic et al. (2021) (10)	<i>The generalizability of the findings is restricted by the fact that participants were drawn from a single housing institution for adults with ID. Secondly, only participants with a moderate ID were added to the sample. Thirdly, participants received additional assistance from examiners when answering the questions, a potential confounding element that we made every effort to minimise.</i>	There was no funding for this research.	No conflicts of interest were declared by all authors.
Schaff and Mohamad (2019) (11)	Not stated	No funding	The study's authors affirm that there were no financial or commercial relationships that may be considered to represent a possible conflict of interest.
Pariera (2016) (12)	The analysis misses the children's perspectives. Participants were requested to recall each occasion for parent-child sexual interaction. However, this does not give a complete picture of how frequently these occasions occurred during the period of the child's upbringing.	Not stated	Not stated
Mackin et al. (2016) (13)	Not stated	Not stated	Not stated
Stein, Kohut & Dillenburg (2017) (14)	Not stated	Not stated.	All authors declared to have no conflicts of interest.

Table 3: Characteristics related to the risk of bias (continued)

Authors (Year)	Main limitation	Finding sources	Declaration of interest
Ang & Lee (2016) (15)	Not stated	This work was partially funded by the Postgraduate Research Student Grant, Institute of Postgraduate Studies, Universiti Sains Malaysia (Grant No. 1001/PGURU/846024).	No conflicts of interest were declared by all authors.
Krantz et al. (2016) (16)	The professional disciplines, years of experience, as well as work settings of the participants differed as the researchers tried to gather a wide range of viewpoints. Given the distinctive school environment as well as the experiences of the team's educators, this variation may point toward the necessity of various forms of OT services. The study design also places restrictions on this work's capacity to be generalised.	Not stated	Not stated
Zhagan (2019) (17)	Not stated	Not stated	Not stated

synthesised from all selected articles. The selection process is represented in Figure 1.

Descriptive overview of included studies

The major characteristics of all the included studies are demonstrated in Table 2. The studies included in this review originated from a variety of countries. There are four local studies that were conducted by (2, 11, 15, 17). On the other hand, three studies were conducted in the United States of America (1, 12, 16), while two studies from Australia (3, 7). The remaining articles are from India (4), the Netherlands (5), Africa (8), and Ethiopia (9). There is one study consisting of the venture of three countries; the United States of America, Northern Ireland, and Kanada (14). The sample size ranges vary from the least three respondents to the most 31,680 respondents.

Study design

This study comprises qualitative and quantitative studies aimed at understanding, explaining, exploring, and clarifying situations, feelings, and perceptions. In this review, two studies are case studies (7, 13), and two studies are grounded theory qualitative studies (11, 16). Other than that, one study is a randomised control trial (2), one study is retrospective research (4), and one study is a longitudinal study (6). Other remaining studies included in this review are cross-sectional studies that are designed to study a phenomenon by taking a cross-section of the population at one time.

Sexual behaviours among adolescents with special needs

Sexual behaviour is individuals' experiences of sexual feeling or expression, while RSB explains any sexual activity that enhances the risk of getting pregnant or contracting STD. Consequently, this leads to unfavourable consequences of early sexual activities, an increase in

unwanted pregnancies, sexual partners, as well as STDs (2), which are issues of concern in Malaysia as a Muslim country.

Behaviour is the primary form of communication for the young generation. In a comparison study among the sexual behaviour of adolescents with high-functioning autism (HFA) and normal developmental adolescents, the study concluded that adolescents with HFA have poorer social behaviours, poorer knowledge and behaviours regarding privacy issues. It also includes less exposure to sexual knowledge and sexual education, more inappropriate sexual behaviours, and greater parents' concerns than normal developmental adolescents. Ey and McInnes (3) conducted a study on sexual behaviours in school setting and the results presented that 40% of educators have observed children showing adverse sexual behaviours. These behaviours included sexually acting out with other children, sexual harassment, displaying sexual behaviours individually, as well as attempting to force other children to participate in sexual behaviour. In terms of frequency, 12% of the educators claimed to have witnessed it every day or several times per week, 12% claimed that they witnessed it less frequently than once per week, 29% claimed to have witnessed it a few times per month, 46% claimed to have witnessed it infrequently, and 1% of the educators left the frequency part unanswered.

Sexual orientations and romantic relationships - an important part in sexuality

Sexual orientation refers to the degree of individuals' attraction to same- or opposite-sex partners. Evidence suggests that intimate and romantic relationships during the transition of adolescence and young adulthood stages are a part of growth and development. Almost 30% and 40% of men and women, consecutively, had their first relationship before the age of sixteen (4). Dewinter et al. (5) established in their study in comparison to a romantic

relationship and sexual orientation experience among adolescents having ASD to general population peers highlighted that more individuals having ASD, particularly women, reported sexual attraction to both opposite- and same-sex partners, and gender non-conforming feelings.

A recent study by Xu et al. (6) reported that most heterosexual adolescents had a progressive sexual pattern or path in their relationship, from kissing to petting and finally to sexual intercourse. In their study, they also included three classes of sexual trajectories of the relationships; (1) non-active sexual, (2) gradually sexually active, and (3) fast sexually active. Other than that, ninety-three women and ninety-six men were noted to have “commitment-with sex-some exploration” relationships, with most being from urban areas and having strict parents (4).

Factors of sexual behaviours among special needs adolescents

Sexual growth and exploration among adolescents are natural and inevitable. However, they are usually influenced by cultural, social, religious, and political contexts. Some main factors that might lead to sexual behaviours are having been sexually abused during childhood, parental relationship, inadequate information and knowledge about sexuality, and cultural values. Other factors, such as living in urban areas, as well as accessibility to internet connection and mobile phones, also contribute to the inadequate way of sexual exploration among adolescents.

Some research concludes that victims of sexual abuse during their childhood present earlier involvement in sexual activities and have more sexual partners. McKibbin et al. (7) also provided strong evidence to correlate harmful sexual behaviour with experiences of pornography and childhood trauma. Apart from that, negative impacts of sexually abusive experiences among adolescents include poor academic performances, harmful sexual behaviour, being sexually active, depression, and Post-Traumatic Stress Disorder (PTSD). Another study reported that girls and boys sexually abused were substantially more likely to exhibit harmful sexual behaviour.

A study by Adimora et al. (8) that aimed to study the predictive power with regard to peer pressure and home environment in impacting sexual behaviour among adolescents revealed that a variety of home environment factors were demonstrated to be a significant factor. Children who grow intellectually and obediently behave thanks to their parents’ warm, responsive, as well as supportive home environment are less likely to develop RSB. Adolescents who lived in chaotic, unstimulated homes exhibited disruptive behaviours, and those exposed to negative peer pressure exhibited disruptive and RSB to a considerable degree. Other than that, families should also focus on the influence of elderly siblings on the younger siblings’ behaviour. At an early age, parents should expose them to the responsibility of protecting their younger siblings (9).

A comparison study on the sexual activity absence and presence among individuals with ID living in institutions and individuals with normal development found that individuals with ID frequently have an insufficient and fundamental knowledge of sexual intercourse as well as sexuality (10). Note that individuals with ID have difficulties identifying body parts, genitals and private parts, in particular. Their study also compared the sexuality issues between individuals with ID in institutional housing and those with ID in family houses. They discovered that individuals with ID in institutional housing were more enlightened with knowledge about sexual intercourse, as well as proper behaviour on a date. Moreover, individuals with ID in institutional houses are well informed about STDs, contraception and birth control, and the consequences of pregnancy at an early age. Hence, individuals with ID in institutional houses are more literate in intimate relationships, sexual interaction, inappropriate sexual behaviours, and the negative effects of RSBs.

Ey and McInnes (3) suggested that children watching pornography are at risk of developmental effects. Besides, the effects of pornography on the developing person include multiple sex partners, RSBs, aggressive attitudes and behaviour in sexual relationships as well as sexual objectification of women.

Sexual education in special needs adolescents

Adolescents with special needs engage in inappropriate sexual behaviour due to a lack of social understanding and sexual knowledge. However, research that listed the differences between sexual development in people having ASD in comparison to normal developing people is still lacking (5). All adolescents, regardless if they are adolescents with special needs or with normal development, are curious to explore their bodies and personalities (10). However, adolescents with special needs are more prone to sexual victimisation and prone to exhibit inappropriate sexual behaviour due to their impaired cognitive skills, social and communication skills, and independence. Hence, it is relatively crucial that children thoroughly understand how to keep themselves sexually safe. Ey and McInnes (3) established that educating children on how to determine inappropriate touching, denying invitations to touch others appropriately, expressing uncomfortable feelings, recognising coercion situations, as well as reporting any of these instances to a trustworthy adult is difficult to allow children to keep themselves aware of their sexual safety.

On the other hand, Pariera (12) reported that some parents stated that they thought their child was too young to be exposed to sexuality and answering their children’s unexpected questions about sexuality was a major communication barrier. Mackin et al. (13) conducted a study to investigate parents’ perception of sexual education needs and determine that parents recognised their vital role in delivering and providing education and sexual knowledge for their children. The respondent also stated that they need some support to fulfill this role.

In this research, all parents agreed that some degree of sexual education was important. All children had been exposed to sexual knowledge, albeit to varied degrees, and the preferred topics comprise the recognition of healthy relationships, safety, and the consequences of early sexual initiation. Another study about parental beliefs about sexual education by Stein et al. (14) claimed that parents should be equipped with the required tools and information to deliver sex education to their adolescents.

However, the general population has opposing attitudes regarding the sexuality of individuals with disabilities and the need to educate parents on this subject (10). This is because the cultural context influenced whether sex education content was accepted for inclusion in curricula (15). As a result, our community in Malaysia still lack awareness about the importance of delivering sexual education to our young generation, especially children and adolescents with special needs.

Some studies determine sexuality education issues in school settings. For example, the heads of the integrated program for students with learning disabilities were the respondents in Ang and Lee's (15) study, in which they were asked to evaluate the suitability of 42 sexuality education topics for students who had learning disabilities. Topics in human development, sexual health, interpersonal skills, as well as society and culture dimensions were rated more important to deliver to the students compared to topics in the sexual behaviour dimension. In another study, the most frequently cited topics reported by the special education teachers were safety (understanding abuse, body awareness and boundaries, as well as consenting to sexual activity) along with appropriate public behaviour (16). Another study expressed that teacher readiness in delivering sexual education to their students is crucial to be acknowledged. The teachers' level of readiness in teaching sexual education elements was at a high level, and there were substantial influences in schools' location, gender, academic qualification as well as teaching experiences on the readiness of the teachers (2).

Occupational therapists' roles in sexuality

In sexuality, OT practitioners play roles in both individualised and community rehabilitation (17). OT has a long history and is skilful in addressing the sexuality of various populations. The major role of an OT is to analyse individual occupational demands of participation in daily occupations while relating the demands with client factors, performance skills, and performance patterns. Note that sexual activity is categorised as an activity of daily living (ADL), and components, for instance, using, cleaning, as well as maintaining contraception or sexual devices, are categorised as instrumental activities of daily living (IADL). Other than that, managing and maintaining sexual health and family planning are categorised as occupation health management (16).

Individuals with special needs differ in their learning styles and ways of taking information due to cognitive

performance limitations. Hence, their learning process should be focused on an individual basis and needs OT intervention to emphasise a holistic approach to delivering sexual education (16). In addition, since OT is important in supporting better social participation in the community and school, OT practitioners might establish a visual support or social script to guide adolescents with special needs in maintaining appropriate boundaries and preventing themselves from practising inappropriate sexual behaviours.

Krantz et al. (16) established that an OT located in a high school environment might serve a substantial role in providing education to adolescents having special needs and their parents on personal boundaries especially related to hygiene and privacy. By encouraging students to engage in volitional behaviours and establish healthy routines and habits, OT may also lead educational teams in developing self-help and self-government skills in them. To lead school teams in establishing solid and encouraging environments where students having special needs may communicate their sexual feelings or curiosity, OT practitioners may require further training (16). Other than that, OT may also collaborate with the government, especially related to education, to grade formal sexual education programmes.

Discussion

This review reveals the sexual behaviour issues among special needs adolescents, the factors that lead to the behaviour, and the importance of sexual education for this population. National Survey of Family Growth reported unwanted first sexual encounters were recorded among 11% of female and male subjects to the age of 18-24. In Malaysia, sexuality issues are rarely discussed and considered "taboo", religious and culturally inappropriate. Hence, sexuality education in schools has not been formally established (15), and topics in human development, interpersonal skills, sexual health, society as well as cultural dimensions of sexuality were covered more compared to topics of sexual behaviours. Over time, Malaysia has had a rising number of sexually active teenagers, problems with premarital pregnancy, illegitimate children and rising cases of abortion among school-aged teenagers. Hence, sexual education is a big issue in this country.

Some factors have been highlighted in this review, including lack of exposure to knowledge of sex, such as private parts of the body, privacy, relationship, and proper sexual expression. Note that adolescents with disabilities do not have chances to learn properly about their sexuality, and this may lead to peer pressure, pornography addiction, self-stimulation, and involving themselves in RSB. For adolescents who use digital media as a source of their sexual behaviour, parents should restrict access to certain stimuli, such as online monitoring, using content filters, placing the computer in places visible to others or installing screening software. These may be the important initial step to inhibit inappropriate sexual behaviours.

On the other hand, Adimora et al. (8) have highlighted the home environment as the factor that could contribute to sexual behaviours. Parents should provide a stimulating environment to encourage cognitive and social development among their children and support their children's curiosity about knowledge. The first and main sexual health educators of children are parents. However, parental strictness in not discussing the culturally inappropriate issue was discovered to limit communication about sex in the family. Some parents tend to ignore or use "fake" language when their children ask about the issues of sexuality, including body parts and intimate relationships.

While some parents think that their children are too young to get exposed to sexuality discussion, Ihwani et al. (2) shared that sex education must be taught in accordance with age level since the children's age development differs. At the age of 7-10 years old, children must be taught about the "adab" (manner) of seeking permission and the "adab" of sight, and at the age of 10-14 years old, children must be taught to hinder and avoid themselves from lusts; and "adab" in a sexual relationship may be introduced to them at the age of 14-16 years old. As per these three stages, adolescents and children must be exposed accordingly following their age. However, they might be involved in activities that relate to sexual misconduct if they are not exposed and educated well in every stage.

Delivering knowledge and teaching sexuality education to special needs adolescents involve unique methods since special disabled persons establish effective, cognitively as well as physically distinct from normal individuals. Moreover, OT practitioners are well-suited to discuss the individualised needs of sexuality issues due to their unique expertise (16), and Special Education and OT programmes on sexual as well as reproductive health should be part of ADL skills for the individual having ASDs (17).

Cognitive Behaviour Therapy (CBT), psychoeducation, and parent-child discussion can deliver sexual knowledge and education to special needs adolescents. Apart from that, video modelling, social stories, visual cues, task analysis, social script fading, and peer tutoring could help deliver sexual knowledge to special needs adolescents. Low-effort strategies include tracking menstrual cycle and written conversation starters for dates (video modelling, task analysis for proper condom application, as well as a rehearsal for self-advocacy when sexual contact is unwanted). Holmes et al. (1) added that improved instructional techniques might incorporate visual support strategies (books, pictures, videos, pamphlets) to improve discussion or skills-based teaching strategies (imitation and role-play, video modelling, social stories, or rehearsal) that target youth development of particular skills.

Limitations

The first limitation of this research is the definite number of available articles on sexual behaviours among the

special needs population. Second, there is no intervention study available on this topic. Hence, the interventions ruled to manage sexual behaviours are unable to describe specifically in this review. Most papers discussing the topics are reviewed papers, which is an exclusion criterion of this study.

Conclusion

This study misfires in enhancing adolescents' behaviour and parents' well-being and mental health. Furthermore, this research helps to determine the current sexual behaviour challenges among adolescents with special needs. It identifies the approaches that could help in delivering sexual education and managing sexual behaviour. The research outcomes also facilitate improving health services, especially in furnishing better insights to healthcare practitioners on sexual behavioural problems. In addition, this review contributes to the establishment of interventions that cater to address challenging sexual behaviour, as well as to guide parents with obligatory educational support in delivering sexual knowledge to their children.

Competing interest

The authors declare that they have no competing interests.

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