

## Health disparities and health promotion needs of college students with intellectual and/or developmental disabilities: A systematic literature review

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### Abstract:

**Objective:** A new population of college students is emerging on campuses across the United States: students with intellectual and/or developmental disabilities (IDD). With this new and growing population of college students, an important question persists: are their health and wellness needs being identified and met? **Participants/Methods:** ProQuest Central, WorldCat, General OneFile, and ArticleFirst were searched in June 2017 using the following criteria: health of college students with IDD, health of adults with IDD, health of adolescents with IDD, and peer-reviewed. Twenty-four articles were selected for final review. **Results:** Specific health and wellness topics were revealed: transition experiences and worries; college experiences, coping strategies, and support needs; sexuality, dating, and romantic relationships; mental health; and drugs and alcohol. **Conclusions:** Research on this unique population should continue, and the etiology of health and wellness issues of college students with IDD should be established to develop and implement evidence-based programming.

**Keywords:** College students | health disparities | health promotion needs | intellectual and/or developmental disabilities (IDD) | postsecondary education (PSE)

### Article:

#### Introduction

It is estimated that approximately 7 to 8 million Americans have an intellectual and/or developmental disability (IDD).<sup>1</sup> Inequality, exclusion, and segregation are all terms that are common and familiar within the history of people with IDD. While there have been several advances and accomplishments in regards to integration<sup>2</sup> and inclusion<sup>3,4</sup> of individuals with IDD

in the United States, this population remains a marginalized population<sup>5</sup> and continues to experience a variety of disparities.<sup>6-11</sup> There are a range of issues that relate to transition into adulthood for individuals with IDD. For example, supportive services for individuals with IDD are most often terminated when the individual reaches adulthood.<sup>12</sup>

In an effort to thwart the inequality, exclusion, and segregation that has surrounded this population of adults for many years, postsecondary education (PSE) programs have been developed. It is the intent that these PSE programs create, expand, and/or enhance high-quality, inclusive higher education experiences to support positive outcomes for individuals with IDD. Currently there are approximately 268 PSE programs for students with IDD across the United States.<sup>13</sup> These PSE programs provide varying levels and combinations of person-centered planning, access to academic advising, residential support, employment services, specialized support for families of students, and/or student support from peer mentors in the areas of academics, socialization, employment, independent living, and transportation. Not only are PSE programs creating opportunities for students with IDD to attend college, receive support, and obtain credentials, the majority of these programs are committed to the continued expansion of access to higher education for individuals with IDD.<sup>14</sup>

Whereas the expansion of access to higher education for individuals with IDD is a promising strategy to diminish inequality, exclusion, and segregation, an important question persists: What are the health and wellness needs of college students with IDD? Considering what some refer to as the “college effect,” a phenomenon suggesting that once a student is on campus they become exposed to risky behaviors such as alcohol use, risky sexual behavior, and experience related negative consequences (e.g., injury, stress, diminished mental health), it is possible that the college effect is impacting college students with IDD in similar ways. Furthermore, the consequences are associated with these and other common college health issues have potentially greater consequences for college students with IDD.

Although there is limited research that specifically provides a comprehensive understanding of the health of college students with IDD, evidence does suggest that health inequalities and disparities exist for adolescents and adults with IDD who are at the college age. Individuals with IDD are generally unfit, obese, and often suffer from high blood pressure.<sup>10</sup> While these health issues are the focus of many community-based health promotion programs, individuals with IDD are rarely included or targeted.<sup>10</sup> Individuals with IDD are often overlooked and receive less by way of routine immunizations, blood pressure checks, cervical and breast cancer screening programs, and healthy nutrition programs.<sup>6</sup> Individuals with IDD, much like other individuals, are sexual beings; however, sexual health education has been shown to be a vital but often neglected aspect of health care for individuals with IDD.<sup>8</sup> Additionally, the development of mental health services for individuals with IDD is minimal due to a lack of recognition at the primary care level and insufficient numbers of trained professionals with specialized services.<sup>11</sup> Finally, health behavior literature related to individuals with IDD and alcohol or drug use is also lacking.

Individuals with IDD who are transitioning into college settings will likely experience some of the very same health challenges that are naturally created by the college environment. Some of the common health challenges that were occurring on college campuses across the country in

2011 included STDs and HIV, and dating violence.<sup>15</sup> Additionally, whereas the amount of resources available to matriculating college students (i.e., college students without IDD) is vast, comparatively speaking, the health education and related support college students with IDD have access to and receive for health issues is relatively unknown.

In sum, there is a dearth of literature that comprehensively outlines the health inequities and disparities for college students with IDD on a college campus, as well as an incomplete understanding of the programming provided to this marginalized population. In order to best serve this population, a better understanding of the health disparities and the health promotion needs of this unique population must be established. Therefore, the purpose of this literature review is to identify and confirm the health disparities and health promotion needs of college students with IDD.

## Methods

The Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA Statement) was used as a framework to guide the systematic review. Articles were identified for review using four search databases, including ProQuest Central, WorldCat, General OneFile, and ArticleFirst. The search was limited to articles in peer-reviewed journals, and written in the English language. No date limits were applied in order to produce enough articles for a meaningful review. Databases were searched for the terms “health of college students with IDD,” “health of adults with IDD,” and “health of adolescents with IDD.” The total number of articles identified through these searches was 1,319.

Inclusion criteria for full-text review included (1) college students with disabilities and/or adolescents or adults with disabilities, (2) health or wellness related topic that is common to the college environment and/or overall college experience (i.e., physical fitness, physical activity, or exercise; food choices or nutrition; drugs or alcohol; sex, dating, or relationships; mental health; and socialization, leisure, or recreation), and (3) article must have downloading capabilities. The health and wellness related topics were determined based on a 2011 reporting of the top eight college illnesses.<sup>15</sup> A screening of titles, abstracts, and full manuscripts was completed for 400 articles. A total of 376 articles were excluded due to their description of non-health or wellness related topics concerning either children, adolescents, or adults with disabilities. Other excluded articles described topics solely concerning family members or support networks of children, adolescents, or adults with disabilities. Thus, the final sample of articles was 24.

Additionally, the Mixed Methods Appraisal Tool, version 2018<sup>16</sup> was utilized to critically appraise the quality of the 24 articles included in this review. The results of this appraisal are included in Table 1. The results of the screening questions for all types of study designs revealed a total of six of the 24 articles that were deemed as not appropriate or feasible for further appraisal. These results were due to the specific types of articles, which included: literature reviews,<sup>18,19,27</sup> viewpoint articles,<sup>33,34</sup> and an autoethnography.<sup>35</sup> A total of seven of the 24 articles were critically appraised as quality studies that employed a qualitative study design.<sup>17,23–26,28,29</sup> One of the 24 articles was critically appraised as a quality study that employed a quantitative randomized control trial study design.<sup>38</sup> A total of six of the 24 articles were critically appraised as a quality study that employed a quantitative non-randomized study

design.<sup>20,21,30,32,36,37</sup> A total of two of the 24 articles were critically appraised as a quality study that employed a quantitative descriptive study design.<sup>39,40</sup> Lastly, a total of two of the 24 articles were critically appraised as a quality study that employed a mixed methods study design.<sup>22,31</sup>

## Results

The 24 articles selected for review are summarized in Table 2. Of the 24 articles included in this review, all of them described one or more of the specified health or wellness related topics for adolescents or adults with disabilities. Each article was published during or after 1997, with the exception of one article that was published in 1988.<sup>17</sup> With respect to date of publication, 83.33% of the articles were published in or after 2001, and 41.66% of the articles were published within the last 5 years. Of the 24 articles, 45.83% were completed within the United States. A total of six articles presented research completed in the United Kingdom, three in Australia, one as a partnership between Canada and the United States, and one in Belgium. Two of the articles were literature reviews, which did not include a research study in a designated location.<sup>18,19</sup> The largest sample size of an individual article was 10,782 women between the ages of 15 and 44 years, and this research utilized secondary data analysis.<sup>20</sup> The largest sample size of an individual article that utilized primary data analysis was 667 undergraduate students.<sup>21</sup>

### Transition experiences and worries

Through the collection of primary data, two articles specifically discussed transition experiences of young people with intellectual disabilities (ID) who were transitioning into college, employment, or adulthood.<sup>22,23</sup> Forte, Jahoda, and Dagnan<sup>22</sup> assessed the worries of young people with and without a mild ID who were transitioning into adulthood. The results of this study revealed large differences between the worries of the transitioning young people with mild ID and the worries of transitioning young people without mild ID. The worries of the transitioning young adults with mild ID included being bullied, losing someone they are dependent upon, failing in life, and making and keeping friends.<sup>22</sup> The worries of the transitioning young adults without mild ID included getting a job, not having enough surplus money, failing, and having to make decisions about their future choices.<sup>22</sup> Findings suggested that the frequency of worrying about the identified concerns was significantly higher for the transitioning young adults with mild ID when compared to the transitioning young adults without mild ID.<sup>22</sup>

Next, Raghavan, Pawson, and Small<sup>23</sup> shifted away from the views of the transitioning individuals and were aiming to capture the experiences and views on transition of the family carers with a special focus on ethnicity. Although it was reported that transition planning did occur, it most frequently occurred later in the young person's school life.<sup>23</sup> As a result of transition planning happening later in a young person's life, confusion and a lack of knowledge about future options for their son or daughter with ID occurred among the family careers.<sup>23</sup> The results also revealed that ethnicity did not affect the overarching result that all the family carers felt excluded from transition-related discussions and experienced a lack of information about transition-related options.<sup>23</sup> Of the four different ethnicities that were represented with the sample (i.e., White British, Pakistani, Bangladeshi, and Black African), the South Asian families

specifically reported more problems in relation to language, information about transition-related services, culture, and religion.<sup>23</sup>

### College experiences, coping strategies, and support needs

A total of seven of the 24 articles described studies in which primary data was collected from samples of college students with disabilities.<sup>17,24-29</sup> Two of these seven articles also included family members<sup>28,29</sup> and tutors<sup>29</sup> of the college students with ID. Additionally, a systematic literature review of evidence for supporting individuals with autism spectrum disorder (ASD) in higher education was also included in this review and described the college experiences, coping strategies, and support needs of college students with ASD.<sup>18</sup> Across the eight articles within the college experiences, coping strategies, and support needs subsection, three aimed to examine the experiences and support needs of college students with ASD,<sup>18,26,27</sup> three focused on college students with ID,<sup>24,28,29</sup> and one focused on college students with disabilities who use wheelchairs.<sup>25</sup> One study specifically aimed to explore the coping strategies of college students with learning disabilities who did not have a specialized program for learning disabilities at their college.<sup>17</sup>

Of the various support needs that were revealed, several were presented within multiple studies. Specifically, it was noted that college students with ID or ASD reported feeling as if they were supported educationally, but not socially.<sup>18,26-28</sup> College students with ID or ASD also reported difficulties and support needs in regards to their transition into higher education which included learning to adjust to new experiences and new situations.<sup>18,24,26,28</sup> Disclosure of disability was also presented as a challenge students experienced and identified as a support need for college students with ID or ASD.<sup>26,28</sup> College students with ASD, in particular, experienced difficulties with anxiety, loneliness, depression, isolation/marginalization, and housing/roommate concerns.<sup>18</sup> Specific support needs for college students with ASD in relation to social communication skills included ability to know how much to say in conversations, understanding jokes, and ability to determine if a listener was interested during conversations.<sup>27</sup>

Whereas a variety of challenges related to coping and support needs were identified, a variety of successes were also underscored. College students with ID explained the benefits of their inclusion in higher education as assisting them in seeing themselves as more alike than different from their peers, as well as feeling more accepted, more competent, and socially networked.<sup>29</sup> Through participatory action research, a group of college students with ID reported feelings of having a new identity, having access to different classes, enjoying campus life, and learning to make use of a variety of transportation methods.<sup>24</sup> College students with disabilities who use wheelchairs reported new experiences with making choices, making use of a personal support network, engagement in the university community, and learning to use self-promotion as a much needed business tool.<sup>25</sup>

### Sexuality, dating, and romantic relationships

Of the 24 articles reviewed, three different studies used primary data collection to explore sexual knowledge sources, actual knowledge, sexual victimization,<sup>30</sup> feelings toward sex education and sexual awareness,<sup>31</sup> and level of knowledge and risk in contracting HIV/AIDS among individuals

with and without ID.<sup>32</sup> Another study used secondary data originally collected from a sample of individuals with and without ID to explore associations between disability status and the fertility attitudes, desires, and intentions of mothers and women without children.<sup>20</sup> Additionally, a systematic review of the literature was conducted to explore attitudes towards sexuality, sterilization, procreation, and parenting by people with ID.<sup>19</sup> Two articles highlighted and discussed a comprehensive approach to supporting the sexuality of adults with ID,<sup>33</sup> as well as strategies for creating safe environments for LGBT students with disabilities.<sup>34</sup> Finally, one study described the completion of an autoethnography that was used to report and describe the author's own personal experiences with and awareness of the intersections of ID and sexuality as both a professional and a family member.<sup>35</sup>

Cumulatively, results presented in these articles revealed important information about sexuality, dating, and romantic relationships that merged thematically. Several articles revealed lower levels of knowledge about a variety of sex-related topics when individuals with ID were compared to individuals without ID,<sup>19,30,32</sup> as well as lower levels of sexual-consciousness, sexual-monitoring, sexual-assertiveness, and sex-appeal-consciousness.<sup>31</sup> Higher levels of risk related to sexuality was also revealed for individuals with ID. When compared to individuals without ID, individuals with ID experienced more sexual victimization,<sup>30</sup> less knowledge of methods to minimize risk of HIV/AIDS infection, and lower confidence levels in their ability to accomplish safe-sex practices.<sup>32</sup>

### Mental health

One study used primary data collection to investigate relationships between excessive reassurance seeking, negative and rejecting social interactions and depression in adults with mild ID.<sup>36</sup> Another study used primary data collection to examine relationships between autism traits, quality of life, and other psychological factors (i.e., depression, anxiety, loneliness, and social anxiety), to determine if any of these psychological factors known to be associated with high levels of ASD traits (i.e., depression, anxiety, loneliness, and social anxiety) mediate the relationship between ASD traits and quality of life.<sup>37</sup> A third study used primary data collection to examine the psychiatric risks associated with high-functioning autism spectrum disorder (HFASD) symptoms in university students.<sup>21</sup> Collectively, the results of these studies revealed important considerations regarding the mental health of individuals with ID and ASD. Excessive reassurance seeking, which is quite common among individuals with ID, was found to be positively related to depressive symptoms.<sup>36</sup> For individuals with ASD, higher scores on the Autism Spectrum Quotient (AQ) were found to be associated with higher levels of loneliness, social anxiety, depression, and anxiety, as well as lower levels of quality of life.<sup>37</sup> College students with HFASD most frequently reported problems with social anxiety, depression, and aggression.<sup>21</sup>

### Drugs and alcohol

This literature review uncovered two studies that used primary data collection to assess the efficacy of a mindfulness-based intervention for smoking cessation,<sup>38</sup> to investigate the smoking rates among a geographically defined group of people with mild ID, and to develop and pilot a smoking education course for this population with a sample of individuals with ID.<sup>39</sup> One other

study used primary data collection with a sample of community informants (i.e., social workers, nurses, and mainstream addiction workers) who had a person(s) with ID that was abusing substances on their caseload. This study aimed to explore how alcohol and drugs affect the health of people with ID.<sup>40</sup>

When investigating the smoking rate of a geographically defined population of individuals with mild ID, a smoking prevalence rate of 36% was discovered. This was higher than the general adult population smoking prevalence (26%) for that same geographically defined area.<sup>39</sup> Individuals with ID who received a mindfulness-based intervention for smoking cessation were compared to individuals with ID who received a usual treatment for smoking cessation, there was a statistically significant reduction in smoking corresponding with those who received the mindfulness-based intervention. Those individuals with ID who received the mindfulness-based intervention were also significantly more successful in abstaining from smoking during a 1-year follow-up when compared to the individuals with ID who received a usual treatment for smoking cessation.<sup>38</sup> In a different research study, 55% of individuals with ID who participated in a smoking education course either quit smoking or cut down their intake significantly. The results also revealed that 73% of the group expressed a desire to stop smoking at the completion of the course, and all participants expressed an increased concern and knowledge about the effects of smoking on their health after completing the course.<sup>39</sup>

Based on the results of the study completed with community informants who had a person(s) with ID that was abusing substances on their caseload,<sup>40</sup> alcohol was the main substance to be misused, with 20% of the substance users also using a combination of illicit drugs and/or prescribed medication. It was also found that almost 75% of the sample was found to be hazardously using alcohol for more than five years. The high risk factors for developing a substance related problem included being male and young, having a borderline/mild ID, living independently, and having a mental health problem. A variety of problematic behaviors for those with a substance related problem were discovered and included aggression, erratic mood changes, sexual exploitation, difficulties in maintaining relationships, and loss of daily routine.<sup>40</sup>

## **Comment**

### Discussion

Individuals with IDD represent a new and growing population of college students. However, few articles exist concerning the health and wellness experiences and/or needs of college students with IDD. Upon expansion of the scope of search to include the health and wellness of adolescents and adults with IDD, some insightful research exists that can shed light on important health and wellness topics for college students with IDD and relate to the college environment (i.e., transition experiences and worries; college experiences, coping strategies, and support needs; sexuality, dating, and romantic relationships; mental health; and drugs and alcohol). Since college students with IDD are likely to experience several of the very same health challenges that students without IDD experience while in college, students with IDD ought not to be forgotten or overlooked.

The results of this literature review revealed a variety of implications and future recommendations. First, regarding transition experiences and worries, the use of a developmental approach to support transitioning young people well before they reach the later stages of their transition<sup>22</sup> and the implementation of additional research to further understand the transition years was recommended.<sup>23</sup> A myriad of recommendations were presented concerning college experiences, coping strategies, and support needs of students with IDD. Several recommended supports emerged including the development of interventions that focus on coping strategies to compensate for or bypass skill deficits,<sup>17</sup> as well as access to coaches in the areas of education,<sup>24,26</sup> student life, and daily living.<sup>26</sup> Other recommended supports include personalized approaches,<sup>26,27</sup> safe and transparent environments with sufficient planning and clear communication; academic accommodations, adequate psychosocial supports, leisure activities, and sufficient rest.<sup>26</sup> Additional recommendations include customized programs to promote social communication competence, standardized testing, self-efficacy questions, observation in natural environment, and full inclusion programming on college campuses.<sup>27</sup> Specifically, multiple studies made recommendations related to the development of programs aimed at increasing faculty awareness about students with IDD at institutions of higher education,<sup>17</sup> additional research to improve understanding, the provision of supports, and post-college outcomes for students with disabilities,<sup>18,25</sup> and participatory collaboration with students with disabilities as co-researchers.<sup>24</sup>

A review of the research focused on sexuality, dating, and romantic relationships of adolescents and adults with IDD uncovered two common recommendations. One was the need for additional research, programming, and evaluation of initiatives that include, consider, and respect the sexuality of individuals with ID,<sup>19,20,30,35</sup> and the other is the need for ongoing and person-centered sexuality education.<sup>19,31-35</sup> Considering these findings, it is noteworthy to point out that current literature suggests that the majority of adults with ID are sexually active or have strong intentions to become sexually active.<sup>32</sup> The same stands true for attitudes and intentions around reproduction. Women with and without ID have similar attitudes toward motherhood, and women with and without ID who do not have children are equally likely to want a child and equally likely to intend to have a child.<sup>20</sup> Contrary to this information, research also indicates that individuals with ID have been marginalized, oppressed, and left out of sexuality discussions, regardless of the fact that individuals with ID are sexual beings with desires, needs, and challenges that specifically relate to their own sexuality.<sup>35</sup>

In regards to mental health of adolescents and adults with IDD, studies indicate the need to educate staff who support individuals with varying forms of ID or ASD so that they can consider and understand mental health experiences and needs of college students with ID or ASD.<sup>21,36,37</sup>

When reviewing the research that focused on the use of alcohol and/or other drugs amongst adolescents and adults with IDD, studies underscore the importance of individuals with IDD being considered as a population who are at risk for dangerous alcohol and drug use and, for some, may require the need for smoking cessation programs.<sup>38-40</sup> More specifically, the researchers who were focusing on smoking cessation suggested the importance of coupling any given advice with the appropriate supportive strategies to assist people with IDD with accomplishing their goals.<sup>39</sup> In regards to substance abuse, this review uncovered the need for a greater emphasis on the early identification of a substance use problem by using primary and

secondary healthcare personnel, and personnel who work with and support individuals with IDD.<sup>40</sup> Therefore, it is suggested that helping people with IDD to make health choices about alcohol or drugs is a relevant issue for health promotion.<sup>7</sup>

Ultimately, as a result of this literature review, one important recommendation is consistently presented. There is an ever-present need for additional research to further understand the experiences, successes, and support needs of this growing population of college students. Not only is research needed, but there are strong suggestions regarding the nature of this research. As Paiewonsky so elegantly explains, involving students with IDD in participatory action research allows light to be shed on authentic “student perspectives and experiences that would not be available in any other format” (p. 41).<sup>24</sup> Participatory action research has the ability to empower students with varying abilities as co-researchers. Once “armed with these skills, students can make suggestions to improve the college experience” and develop “a leadership role in shaping an inclusive college education” (p. 41).<sup>24</sup> When attempting to better understand the health disparities and the health promotion needs of this unique population, as well as the etiology of these issues, it is vital and mutually beneficial to work with the true experts (i.e., college students with IDD and their support networks) as co-researchers in a participatory, meaningful, and empowering way.

### Limitations

A limitation of this review is the lack of articles that specifically address the health and wellness needs of college students with IDD. There were only eight articles that addressed the needs of college students with IDD.<sup>17,21,24–29</sup> Eleven of the articles contained international studies, which may also limit implications for use in the United States.

### Conclusion

Given that there are approximately 268 PSE programs that specifically serve individuals with IDD across the United States, the number of students with IDD who are attending a college or university will most likely continue to increase. This article underscores important health and wellness needs of college students with IDD. It is imperative that research on this unique population continues and that attention be given to establishing the etiology of health and wellness issues of college students with IDD in order to develop and implement evidence-based programming.

### Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of United States and received approval from the University of North Carolina at Greensboro.

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## References

1. Karimi M. Administration on Intellectual and Developmental Disabilities (AIDD) fact sheet. <https://acl.gov/Programs/AIDD/Programs/PCPID/index.aspx>. Published 2016. Accessed February 7, 2017.
2. Friedman C. Community integration of people with intellectual and developmental disabilities: A national longitudinal analysis. *Disabil Health J.* 2017;10(4):616–620. doi:10.1016/j.dhjo.2016.12.018.
3. Bogenschutz M, Amado A, Smith C, et al. National research goals for social inclusion of people with IDD. *Inclusion* 2015; 3(4):211–218
4. Lysaght R, Petner-Arrey J, Howell-Moneta A, Cobigo V. Inclusion through work and productivity for persons with intellectual and developmental disabilities. *J Appl Res Intellect Disabil.* 2017;30(5):922–935. doi:10.1111/jar.12284.
5. Special Olympics. Status and prospects of persons with intellectual disability. [http://www.specialolympics.org/uploadedFiles/LandingPage/WhatWeDo/Research\\_Studies\\_Description\\_Pages/Policy\\_Paper\\_Status\\_Prospects.pdf](http://www.specialolympics.org/uploadedFiles/LandingPage/WhatWeDo/Research_Studies_Description_Pages/Policy_Paper_Status_Prospects.pdf). Published 2009. Accessed August, 2, 2017.
6. Beange H, Durvasula S. Health inequalities in people with intellectual disability: Strategies for improvement. *Health Promot J Aust.* 2001;11:27–31.
7. Clarke J, Wilson D. Alcohol problems and intellectual disability. *J Intellect Disabil Res.* 1999;43(2):135–139. doi:10.1046/j.1365-2788.1999.00200.x.
8. Eastgate G. Sex and intellectual disability: dealing with sexual health issues. *Aust. Family Physician.* 2011;40(4):188–191.
9. Kerr M, Richards D, Glover G. Primary care for people with an intellectual disability: a group practice survey. *J. Appl. Res. Intellect. Disabil.* 1996;9(4):347–352. doi:10.1111/j.1468-3148.1996.tb00120.x.
10. Leeder S, Dominello A. Health, equity, and intellectual disability. *J Appl Res Int Dis.* 2005;18(2):97–100. doi:10.1111/j.1468-3148.2005.00238.x.
11. McCarthy J. Mental health services and young people with intellectual disability: is it time to do better?. *J Intellect Disabil Res.* 2002;6(3):250–256. doi:10.1046/j.1365-2788.2002.00401.x.
12. Bottos M, Feliciangeli A, Sciuto L, Gericke C, Vianello A. Functional status of adults with cerebral palsy and implications for treatment of children. *Dev Med Child Neurol.* 2001;43(8):516–528.

13. Institute for Community Inclusion at University of Massachusetts Boston. College search. <https://thinkcollege.net/college-search>. Published 2017. Accessed November 11, 2017.
14. Grigal M, Hart D, Papay C, Domin D, Smith F. Year One Program Data Summary (2015-2016) from the TPSID Model Demonstration Projects. Boston, MA: University of Massachusetts Boston, Institute for Community Inclusion; 2017.
15. Iliades C. 8 top college illnesses: Protect your health in college by taking smart precautions. <http://www.everydayhealth.com/college-health-pictures/protect-your-health-in-college-by-taking-smart-precautions.aspx#01>. Published April 28, 2011. Accessed February 14, 2017.
16. Hong QN, Pluye P, Fabreques S, et al. Mixed Methods Appraisal Tool (MMAT), Version 2018. Registration of Copyright (#1148552), Canadian Intellectual Property Office, Industry Canada.
17. Cowen S. Coping strategies of university students with learning disabilities. *J Learn Disabil*. 1988;21(3):161–164. doi:10.1177/002221948802100308.
18. Gelbar NW, Smith I, Reichow B. Systematic review of articles describing experience and supports of individuals with autism enrolled in college and university programs. *J Autism Dev Disord*. 2014;44(10):2593–2601. doi:10.1007/s10803-014-2135-5.
19. Aunos M, Feldman MA. Attitudes towards sexuality, sterilization and parenting rights of persons with intellectual disabilities. *J Appl Res Int Dis*. 2002;15(4):285–296. doi:10.1046/j.1468-3148.2002.00135.x.
20. Shandra CL, Hogan DP, Short SE. Planning for motherhood: fertility attitudes, desires and intentions among women with disabilities. *Perspect Sex Reprod Health*. 2014;46(4):203–210. doi:10.1363/46e2514.
21. White S, Ollendick T, Bray B. College students on the autism spectrum: prevalence and associated problems. *Autism*. 2011;15(6):683–701. doi:10.1177/1362361310393363.
22. Forte M, Jahoda A, Dagnan D. An anxious time? Exploring the nature of worries experienced by young people with a mild to moderate intellectual disability as they make the transition to adulthood. *Br J Clin Psychol*. 2011;50(4):398–411. doi:10.1111/j.2044-8260.2010.02002.x.
23. Raghavan R, Pawson N, Small N. Family carers' perspectives on post-school transition of young people with intellectual disabilities with special reference to ethnicity. *J Intellect Disabil Res*. 2013;57(10):936–946. doi:10.1111/j.1365-2788.2012.01588.x.
24. Paiewonsky M. Hitting the reset button on education: student reports on going to college. *Career Dev Except Individ*. 2011; 34(1):31–44. doi:10.1177/0885728811399277.

25. Paul S. Students with disabilities in post-secondary education: the perspectives of wheelchair users. *Occup Ther Int*. 1999;6(2):90–109. doi:10.1002/oti.91.
26. Van HV, Moyson T, Roeyers H. Higher education experiences of students with autism spectrum disorder: challenges, benefits and support needs. *J Autism Dev Disord*. 2015;45(6):1673–1688. doi:10.1007/s10803-014-2324-2.
27. Zager D, Alpern C. College-based inclusion programming for transition-age students with autism. *Focus Autism Other Dev Disabl*. 2010;25(3):151–157. doi:10.1177/1088357610371331.
28. Cai RY, Richdale AL. Educational experiences and needs of higher education students with autism spectrum disorder. *J Autism Dev Disord*. 2016;46(1):31–41. doi:10.1007/s10803-015-2535-1.
29. O'Brien P, Shevlin M, O'Keefe M, Fitzgerald S, Curtis S, Kenny M. Opening up a whole new world for students with intellectual disabilities within a third level setting. *Br J Learn Disabil*. 2009;37(4):285–292. doi:10.1111/j.1468-3156.2009.00584.x.
30. Brown-Lavoie S, Vecili M, Weiss J. Sexual knowledge and victimization in adults with autism spectrum disorders. *J Autism Dev Disord*. 2014;44(9):2185–2196. doi:10.1007/s10803-014-2093-y.
31. Hannah LA, Stagg SD. Experiences of sex education and sexual awareness in young adults with autism spectrum disorder. *J Autism Dev Disord*. 2016;46(12):3678–3687. doi:10.1007/s10803-016-2906-2.
32. McGillivray JA. Level of knowledge and risk of contracting HIV/AIDS amongst young adults with mild/moderate intellectual disability. *J Appl Res Intellect Disabil*. 1999;12(2):113–126. doi:10.1111/j.1468-3148.1999.tb00070.x.
33. Lumley V, Scotti J. Supporting the sexuality of adults with mental retardation. *J Posit Behav Intervent*. 2001;3(2):109–119. doi:10.1177/109830070100300208.
34. Morgan J, Mancl D, Kaffar B, Ferreira D. Creating safe environments for students with disabilities who identify as lesbian, gay, bisexual, or transgender. *Intervent School Clinic*. 2011;47(1):3–13. doi:10.1177/1053451211406546.
35. Wings-Yanez N. Why all the talk about sex? An autoethnography identifying the troubling discourse of sexuality and intellectual disability. *Sex Disabil*. 2014;32(1):107–116. doi:10.1007/s11195-013-9331-7.
36. Hartley SL, Lickel AH, MacLean J. Reassurance seeking and depression in adults with mild intellectual disability. *J Intellect Disabil Res*. 2008;52(11):917–929. doi:10.1111/j.1365-2788.2008.01126.x.

37. Reed P, Giles A, Gavin M, Carter N, Osborne LA. Loneliness and social anxiety mediate the relationship between autism quotient and quality of life in university students. *J Dev Phys Disabil*. 2016;28(5):723–733. doi:10.1007/s10882-016-9504-2.
38. Singh NN, Lancioni GE, Myers RE, Karazsia BT, Winton ASW, Singh J. A randomized controlled trial of a mindfulness-based smoking cessation program for individuals with mild intellectual disability. *Int J Ment Health Addiction*. 2014;12(2):153–168. doi:10.1007/s11469-013-9471-0.
39. Tracy J, Hosken R. The importance of smoking education and preventative health strategies for people with intellectual disability. *J Intellect Disabil Res*. 1997;41(5):416–421. doi:10.1111/j.1365-2788.1997.tb00729.x.
40. Taggart L, McLaughlin D, Quinn B, Milligan V. An exploration of substance misuse in people with intellectual disabilities. *J Intellect Disabil Res*. 2006;50(8):588–597. doi:10.1111/j.1365-2788.2006.00820.x

**Table 1.** Results from mixed methods appraisal tool (MMAT), version 2018.

Category of Study Design	Methodological Quality Criteria	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Screening questions (for all types)	Are there clear research questions?	x	✓	✓	✓	✓	x	✓	✓	x	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	x
	Do the collected data allow to address the research questions?	x	✓	✓	✓	✓	x	✓	✓	x	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x
	<i>Further appraisal is not feasible or appropriate when the answer is "X" to one or both screening questions.</i>																								
Qualitative	Is the qualitative approach appropriate to answer the research question?			✓	✓								✓	✓	✓	✓							✓		
	Are the qualitative data collection methods adequate to address the research question?			✓	✓								✓	✓	✓	✓							✓		
	Are the findings adequately derived from the data?			✓	✓								✓	✓	✓	✓							✓		
	Is the interpretation of results sufficiently substantiated by data?			✓	✓								✓	✓	✓	✓							✓		
	Is there coherence between qualitative data sources, collection, analysis and interpretation?			✓	✓								✓	✓	✓	✓							✓		
Quantitative randomized controlled trials	Is randomization appropriately performed?																			✓					
	Are the groups comparable at baseline?																			✓					
	Are there complete outcome data?																			✓					
	Are outcome assessors blinded to the intervention provided?																			✓					
	Did the participants adhere to the assigned intervention?																			✓					
Quantitative non-randomized	Are the participants representative of the target population?		✓					✓		✓							✓	✓					✓		
	Are measurements appropriate regarding both the outcome and intervention (or exposure)?		✓					✓		✓							✓	✓					✓		
	Are there complete outcome data?		✓					✓		✓							✓	✓					✓		
	Are the confounders accounted for in the design and analysis?		✓					✓		✓							✓	✓					✓		
	During the study period, is the intervention administered (or exposure occurred) as intended?		✓					✓		✓							✓	✓					✓		
Quantitative descriptive	Is the sampling strategy relevant to address the research question?																			✓	✓				
	Is the sample representative of the target population?																			✓	✓				
	Are the measurements appropriate?																			✓	✓				
	Is the risk of nonresponse bias low?																			✓	✓				
	Is the statistical analysis appropriate to answer the research question?																			✓	✓				
Mixed methods	Is there an adequate rationale for using a mixed methods design to address the research question?				✓		✓																		
	Are the different components of the study effectively integrated to answer the research question?				✓		✓																		
	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				✓		✓																		
	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				✓		✓																		
	Do the different components of the study adhere to the quality criterion of each tradition of the methods involved?				✓		✓																		

Note. The numbers listed at the top right of table (i.e., 1–24) correspond with the 24 articles included in this literature review (see list below). A comment regarding the type of manuscript, which informed the decision to not complete an appraisal, is listed in italics and parentheses after the respective article.

1. Aunos & Feldman, 2002 (literature review).19

2. Brown-Lavoie et al., 2014.30
3. Cai & Richdale, 2016.28
4. Cowen, 1988.17
5. Forte et al., 2011.22
6. Gelbar et al., 2014 (literature review).18
7. Hannah & Stagg, 2016.31
8. Hartley et al., 2008.36
9. Lumley & Scotti, 2001 (viewpoint).33
10. McGillivray, 1999.32
11. Morgan et al., 2011 (viewpoint).34
12. O'Brien et al., 2009.29
13. Paiewonsky, 2011.24
14. Paul, 1999.25
15. Raghavan et al., 2013.23
16. Reed et al., 2016.37
17. Shandra et al., 2014.20
18. Singh et al., 2014.38
19. Taggart et al., 2006.40
20. Tracy & Hosken, 1997.39
21. Van et al., 2015.26
22. White et al., 2011.21
23. Wings-Yanez, 2013 (autoethnography).35
24. Zager & Alpern, 2010 (literature review).27

**Table 2.** Characteristics of each article and future recommendations presented within each article.

<b>Article</b>	<b>Data Type</b>	<b>Sample</b>	<b>Literature Review Subsection</b>	<b>Future Recommendations</b>
Aunos & Feldman (2002) <sup>19</sup>	Secondary	Individuals with ID	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Studies to assess attitude change of parents, teachers, professionals, judges, workers, and people with ID in regards to procreation and sterilization</li> <li>- Studies to evaluate effects of prejudicial attitudes on sexual expressions and parenting</li> </ul>
Brown-Lavoie, Vecili, & Weiss (2014) <sup>30</sup>	Primary	Individuals with and without ASD	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Research to determine best practices for proactive prevention, through teaching of sexually related information to children, adolescents, and adults</li> <li>- Research to examine association between childhood victimization and adult victimization, and other individual and contextual factors that contribute to increased risk for victimization</li> </ul>
Cai & Richdale (2016) <sup>28</sup>	Primary	College students with ASD and their family members	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Disclosure and registration with disability support services</li> <li>- New research on best way to provide educational support and social support</li> </ul>
Cowen (1988) <sup>17</sup>	Primary	College students with learning disabilities	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Intervention strategies that focus on coping strategies for compensating for or bypassing skill deficits, and remediation of skill deficits</li> <li>- High school personnel to teach compensatory strategies</li> <li>- High school counselors to help students gain awareness of support services available on campuses where applying</li> <li>- Postsecondary institutions to develop faculty awareness of characteristics of students</li> </ul>

				<ul style="list-style-type: none"> <li>- Research on influence of social/emotional factors on academic progress, relationships between effectiveness of coping strategies and intelligence, level of education reached, grade point average, and severity of the learning disability</li> </ul>
Forte, Jahoda, & Dagnan (2011) <sup>22</sup>	Primary	Young adults with and without mild ID who were transitioning into college environments	<i>Transition Experiences and Worries</i>	<ul style="list-style-type: none"> <li>- Broad agenda to overcome social exclusion and limited life opportunities</li> <li>- Developmental approach to promote resilience and sense of self-determination, and to reduce worry before reaching later stages of transition</li> </ul>
Gelbar, Smith, & Reichow (2014) <sup>18</sup>	Secondary	College students with ASD	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Research to understand how to best serve these students in college and to improve their post-school outcomes</li> </ul>
Hannah & Stagg (2016) <sup>31</sup>	Primary	Individuals with and without ASD	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Education relating to sex and sexuality in school that is more specifically tailored to particular needs</li> <li>- Sex and sexuality education in schools should incorporate specific features of ASD (i.e., rigidity of thought, a lack of peer group support, difficulties in reading intentions of others)</li> <li>- Research focused on needs and concerns related to sex and sexuality</li> </ul>
Hartley, Lickel, & MacLean (2008) <sup>36</sup>	Primary	Individuals with mild ID and their support staff	<i>Mental Health</i>	<ul style="list-style-type: none"> <li>- Research to determine whether staff behavior is consistent with stated preferences in regards to interacting less with depressed than nondepressed adults</li> <li>- Research focused on interpersonal pathways contributing to depression</li> <li>- Interventions to treat depression</li> <li>- Educate staff and adults about interpersonal pattern of excessive reassurance seeking and ways to alter it</li> </ul>
Lumley & Scotti (2001) <sup>33</sup>	No data collection; conceptual article	Individuals with ID	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Expanded approach to addressing sexuality, which includes continuous, long-term person-centered planning and support</li> <li>- Utilize team approaches to maximize, coordinate, and integrate assessment, program development, and provision of support in regards to sexuality</li> <li>- Comprehensive programs to address sexuality, with data collected to determine program effectiveness</li> </ul>
McGillivray (1999) <sup>32</sup>	Primary	Individuals with and without mild/moderate ID	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Solutions to address increased vulnerability to contracting HIV/AIDS need to extend beyond provision of sexuality education and skills training</li> <li>- Challenge service providers to recognize and support people with ID in their sexual orientations and choices</li> </ul>
Morgan, Mancl, Kaffar, & Ferreira (2011) <sup>34</sup>	No data collection; conceptual article	LGBT secondary students with disabilities	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Educators to address LGBT issues to ensure safety and security of all students</li> <li>- Special education professionals to recognize that students do have a sexual identity that is an important part of student development</li> <li>- Implement strategies to protect the safety and well-being of all LGBT students</li> </ul>
O'Brien, Shevlin, O'Keefe, Fitzgerald, Curtis, & Kenny (2009) <sup>29</sup>	Primary	College students with ID	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Acknowledge voice of college students with ID</li> <li>- Increase opportunities within postsecondary education settings to maximize academic and social development, consistent with the goal of full inclusion</li> </ul>

Paiewonsky (2011) <sup>24</sup>	Primary	College students with ID	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Facilitation of participatory action research, so that researchers and practitioners can draw more accurate conclusions about what is going well and what needs to change</li> <li>- Utilize participatory action research to give these students opportunity to reflect on this new experience, and to build their own leadership role in shaping an inclusive college education</li> </ul>
Paul (1999) <sup>25</sup>	Primary	College students with disabilities who use wheelchairs	<i>College Experiences, Coping Strategies, and Support Needs</i>	<ul style="list-style-type: none"> <li>- Increase provision of appropriate services by assessing needs, and involving students in decision-making process</li> <li>- Increase use of in-depth interviewing among university personnel as means of contributing to evaluation and service provision</li> <li>- Research to understand difference in needs among different institutional environments, among postgraduate and undergraduate students, and among male and female college students</li> <li>- Research capturing ethnographic perspective to enrich what is already known about day-to-day activities of students</li> </ul>
Raghavan, Pawson, & Small (2013) <sup>23</sup>	Primary	Family Carers of young adults with ID who were transitioning into college environments	<i>Transition Experiences and Worries</i>	<ul style="list-style-type: none"> <li>- Research to understand complex relationship between socioeconomic standing and ethnicity</li> <li>- Service providers should not assume presence of family support beyond nuclear family</li> <li>- Service providers should explore complex dynamics of family relations</li> <li>- Use interdependence as goal of transition plannings to be more consistent with family wishes</li> </ul>
Reed, Giles, Gavin, Carter, & Osborne (2016) <sup>37</sup>	Primary	College students with and without ASD	<i>Mental Health</i>	<ul style="list-style-type: none"> <li>- Research to better understand how significant psychosocial difficulties and comorbidities affect quality of life</li> <li>- Development of supports</li> </ul>
Shandra, Hogan, & Short (2014) <sup>20</sup>	Secondary	Mothers and women without children who do and do not have a disability	<i>Sexuality, Dating, and Romantic Relationships</i>	<ul style="list-style-type: none"> <li>- Reproductive health researchers and practitioners to assure support for all women who desire pregnancy and motherhood</li> <li>- Deeper understanding of reproductive health needs and challenges</li> </ul>
Singh, Lancioni, Myers, Karazsia, Winton, & Singh (2014) <sup>38</sup>	Primary	Individuals with mild ID	<i>Drugs and Alcohol</i>	<ul style="list-style-type: none"> <li>- Research focused on differential abilities for effectively regulating emotions of smokers who are successful quitters, and those that either cannot quit smoking or who lapse early after quitting</li> <li>- Research to investigate specific facets of mindfulness that may be strongly correlated with emotion regulation deficits of quitters</li> <li>- Research and practice that makes use of mindfulness-based procedures</li> </ul>
Taggart, McLaughlin, Quinn, & Milligan (2006) <sup>40</sup>	Primary	Social workers, nurses, and mainstream addiction workers with person(s) with ID who were abusing substances on their caseload	<i>Drugs and Alcohol</i>	<ul style="list-style-type: none"> <li>- Reexamination of existing mental health services, since substance misuse is associated with mental health problems</li> <li>- Primary care personnel and staff to recognize those individuals who are hazardously using alcohol, drugs, and/or prescribed medications.</li> </ul>
Tracy & Hosken (1997) <sup>39</sup>	Primary	Individuals with mild ID	<i>Drugs and Alcohol</i>	<ul style="list-style-type: none"> <li>- Giving individual, clear advice about implications of smoking to individuals, followed by appropriate supportive strategies to assist people to accomplish goals</li> </ul>

				- Primary care physicians to assist people to consider effects of smoking on their health and to support them if they decide to stop smoking
Van, Moyson, & Roeyers (2015) <sup>26</sup>	Primary	College students with ASD	<i>College Experiences, Coping Strategies, and Support Needs</i>	- Academic staff's, counselors', and students' wider networks to take into account unique and individual needs and strengths of a student, and offer appropriate support and accommodations in education, student life, and daily living - Academic staff's, counselors', and the students' wider networks to take into account recommendations of students to contribute to better, more accessible and inclusive education
White, Ollendick, & Bray (2011) <sup>21</sup>	Primary	College students with and without HFASD	<i>Mental Health</i>	- University administrators, educators, and personnel who serve students to be mindful of population and identify approaches to make college a successful and satisfying experience - Research to study and better understand needs of college students
Winges-Yanez (2014) <sup>35</sup>	No data collection; autoethnography	Individuals with ID	<i>Sexuality, Dating, and Romantic Relationships</i>	- Research that is inclusive and respectful - Evaluations of current sexuality education curriculum with focus of special education and equity
Zager & Alpern (2010) <sup>27</sup>	Primary and Secondary	College students with ASD	<i>College Experiences, Coping Strategies, and Support Needs</i>	- Further use of comprehensive, meaningful assessment and individualized support services for students to become active participants in developing their own programs to enhance development of social communication competence