

**CRITICAL REVIEW**

# Balancing the story of fetal alcohol spectrum disorder: A narrative review of the literature on strengths

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**Abstract**

For many years, researchers have explored the complex challenges experienced by individuals with fetal alcohol spectrum disorder (FASD). This research has been important for documenting the brain- and body-based impacts of prenatal alcohol exposure and the psychosocial vulnerabilities and environmental adversities frequently associated with FASD. It has also supported advocacy efforts and highlighted the necessity of providing FASD services and supports. However, with the focus on deficits and needs, there is a considerable gap in the literature on the strengths and successes of individuals with FASD. The lack of strengths-based FASD research has likely perpetuated the stress and stigma experienced by individuals with FASD and their families. Thus, there is a critical need to shift the direction of the field. Here we provide a narrative review of the literature on strengths in FASD. Our goals are to: (1) understand the state of strengths-based research related to individuals with FASD across the lifespan, and (2) describe positive characteristics, talents, and abilities of individuals with FASD that may be cultivated to promote their fulfillment and well-being. We identified a total of 19 studies, most of which were conducted to explore the lived experiences of adults with FASD. This preliminary but critical body of evidence highlights the intrinsic strengths of individuals with FASD, including strong self-awareness, receptiveness to support, capacity for human connection, perseverance through challenges, and hope for the future. Despite the importance of this emerging evidence, appraisal of the literature indicates a need for more intentional, methodologically rigorous, participatory, and theory-driven research in this area. Findings from this study, including the identified gaps in the literature, can be used to inform research, practice, and policy to meaningfully advance the field of FASD and promote positive outcomes in this population.

**KEYWORDS**

character strengths, fetal alcohol spectrum disorder, literature review, positive psychology, prenatal alcohol exposure

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## INTRODUCTION

Fetal alcohol spectrum disorder (FASD) is a common neurodevelopmental disability (NDD) stemming from prenatal alcohol exposure (PAE) with a broad range of impacts on the brain and body. Individuals with FASD are diverse, with differing patterns of physical, cognitive, behavioral, and social-emotional functioning between individuals (Mattson et al., 2019). Great strides have been made over the last several decades to identify the negative neurodevelopmental impacts of PAE and the high rates of adversity experienced by individuals with FASD across their lifespan (Garrison et al., 2019; McLachlan et al., 2020; Price et al., 2017; Streissguth et al., 2004). Important research has also been conducted to explore the experiences and needs of individuals with FASD and their families, but there remains a significant gap in research on strengths (Domeij et al., 2018; Skorka et al., 2020). This deficit- and need-oriented research has been crucial in establishing the harmful developmental impacts of PAE and has fueled advocacy for services and supports for individuals with FASD and their families. However, in the absence of complementary FASD research on strengths and successes, this deficit-based narrative has become dominant and problematic (Olson & Sparrow, 2021; Skorka et al., 2020).

### Pathologizing disability

When viewed through a medical lens, NDDs and disabilities more broadly tend to be characterized via deficits or deviations from a “norm” that should be “fixed,” with language framing an “inability” or “lack” of what would be otherwise normatively expected (Hogan, 2019; Shogren et al., 2017a). This deficit-focused perspective presents an overly narrow view of the individual and can negate the positive characteristics and rich diversity of people with FASD (Olson & Sparrow, 2021; Skorka et al., 2020). An exclusive focus on deficits and negative experiences may also contribute to a sense of shame, victimization, and suffering, which may in turn add to the already profound stigma associated with FASD (Bell et al., 2015; Choate & Badry, 2019). Internalized stigma can damage self-esteem, positive identity development, self-efficacy, and self-determination, which may in turn reduce quality of life for individuals with disabilities (Wehmeyer, 2014, 2020), including those with FASD. A predominant focus on challenges and negative outcomes may also lead to heightened caregiver and family stress (Olson & Sparrow, 2021). For professionals and the public more broadly, stigma and bias can lead to individuals with disabilities being viewed as burdensome, villainous, or objects of pity, perpetuating negative outcomes such as social exclusion and employment discrimination (Aspler et al., 2018, 2019). Deficit-oriented framing and a predominant emphasis on negative outcomes can also adversely impact policy, decreasing incentive for governments or service agencies to develop and fund programs.

## Shifting perspectives with strengths-based research

There is emerging recognition of the importance of adopting a more holistic consideration of positive personal characteristics and strengths, including in NDD research and practice (Shogren et al., 2006; Wehmeyer & Shogren, 2014). Applying a positive psychology lens shifts the focus toward understanding optimal human functioning and promoting personal strengths and other factors that allow individuals and communities to thrive and flourish (Seligman & Csikszentmihalyi, 2000; Wood & Tarrier, 2010). This approach has helped to promote more holistic understandings of disability, including NDDs (Shogren et al., 2006), but has lagged in its uptake in FASD. Many benefits stem from applying strengths-based approaches to research and practice with people with NDDs. Understanding and promoting strengths may foster an enhanced sense of competence, increase subjective well-being and resilience, and support a range of positive outcomes, including academic functioning, life transitions, and quality of life (Carter et al., 2015; Clark & Adams, 2021; Grove et al., 2018; Lee et al., 2020; Riosa et al., 2017). A strengths-based approach can also promote a more optimistic outlook for caregivers, which may lessen stress and feelings of hopelessness, and support healthier coping for families (Shochet et al., 2019). This shift in perspective has important implications for intervention, allowing service providers to not only focus on remediating difficulties, but also on fostering strengths and promoting well-being. In this way, intervention planning and delivery is enhanced, leading to more positive individual outcomes, and improved optimism and hope among professionals (Macaskill & Denovan, 2014; Petrenko, 2015; Zarnegar et al., 2016). Consideration of strengths may also increase community support and decrease stigma by pushing back against the harmful negative narratives commonly portrayed about FASD, promoting greater advocacy, and ultimately greater supports (Bell et al., 2015).

### Current study

Despite the recognized importance of strengths-based research with individuals with disabilities, there have been no structured or systematic efforts to date to describe or synthesize the evidence on strengths in FASD. To encourage a shift in the existing deficit-focused FASD perspective, there is a need to identify strengths and explore ways of promoting positive outcomes. The purpose of this study was to answer the questions:

1. What is the state of strengths-based FASD research for individuals across the lifespan?
2. What individual characteristics, talents, and abilities have been identified that may contribute to, and be cultivated to promote fulfillment and well-being for individuals with FASD?

Our goals were to consolidate and synthesize this literature; identify key findings and gaps; and consider how the existing

evidence may be integrated into research, practice, and policy to advance the field of FASD.

## Conceptual framework

Our framework for conceptualizing and conducting this study was based on positive psychology theory and the literature on character strengths, given their prior consideration in other disability populations and potential relevance to FASD (Niemiec et al., 2017; Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000; Shogren et al., 2006). Informed in part by Peterson and Seligman's (2004) criteria for character strengths, we defined strengths as "positive individual characteristics, talents, or abilities that may contribute to, and be cultivated to promote an individual's fulfillment and well-being." Although character strengths are often distinguished from specific talents (e.g., athleticism) and abilities (e.g., intelligence), we opted to include these in a broader conceptualization of strengths given an anticipated scarce FASD literature, coupled with the importance of broadly capturing *all* aspects of individuals with FASD that may be cultivated to promote fulfillment and well-being. Notably, we held the positive psychology view that strength is more than an absence of weakness, just as "optimism is not simply the absence of pessimism, and well-being is not simply the absence of helplessness" (Peterson, 2000, p. 48). Therefore, our focus was on the presence of strengths, rather than the relative absence of deficits.

## MATERIALS AND METHODS

We used a comprehensive approach to identify peer-reviewed literature contributing evidence on strengths of individuals with FASD, informed by Grant and Booth's (2009) guidelines for narrative literature reviews. We also followed Green et al. (2006) practical guidelines for setting our research aims, comprehensively reviewing the literature, and synthesizing and presenting our findings using an objective, clear, and well-structured approach. We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021) to track and illustrate our study selection process, the Critical Appraisal Skills Programme checklist (CASP, 2018) to guide our appraisal of the literature, and the textual narrative approach (Lucas et al., 2007) to synthesize findings. The study was registered with PROSPERO (CRD42020191869).

### Eligibility criteria

We targeted studies where researchers identified positive characteristics, talents, or abilities that may contribute to, and be cultivated to promote fulfillment and well-being for individuals with FASD. Our inclusion criteria were publications that: (1) focused on human

participants of all ages and genders with PAE or FASD; (2) presented original and peer-reviewed research; and (3) contributed empirical evidence on strengths.<sup>1</sup> Included studies did not need to be explicitly strengths-based but were required to contribute *some* evidence on positive characteristics, talents, or abilities of individuals with FASD.<sup>2</sup> There were no limits on study date, design, or methodology, and both quantitative and qualitative research approaches were considered. Only English publications were included.

### Information sources and search strategy

Between June 2020 and February 2021, studies were identified by searching PsycINFO, Social Services Abstracts, and Web of Science. Subject headings and keywords included terms related to FASD, PAE, resilience, strengths, success, and achievements (see Supporting Information for details). This search strategy was developed in collaboration with the librarian on the team and reviewed by a second librarian.

### Selection process

All records identified in the search were entered into EndNote, and duplicates were removed. Two authors (KF, AW) independently screened titles and removed irrelevant records (e.g., animal studies, those with no mention of FASD). Three authors (KF, AW, KH) independently screened relevant abstracts and identified those that appeared to meet eligibility criteria. Finally, two authors (KF, AW) independently reviewed full texts to determine the final list of articles to be included. Reference lists of included publications were reviewed for other relevant articles. Throughout the selection process, discrepancies between authors were resolved through discussion until consensus was reached.

### Study appraisal

The content and utility of studies were appraised as they pertained to our research questions and to inform future work in the area.<sup>3</sup> Appraisal criteria included whether researchers: (1) stated that their research purpose was to explore or identify strengths of individuals with FASD; (2) directly evaluated strengths in individuals with FASD (i.e., asked participants about strengths); (3) conceptualized or defined strengths within an established theoretical framework; (4) used evidence-based approaches<sup>4</sup> or tools to study strengths; (5) contributed novel findings about strengths; and (6) discussed how strengths may contribute to, and/or be cultivated to promote fulfillment and well-being for individuals with FASD. A sample of three studies were appraised independently by two authors (KF, AW), and once consensus was reached on a consistent approach, the first author completed the remaining appraisals.

## Data extraction and synthesis

Using standardized templates, two authors (KF, AW) shared data extraction, gathering information about study characteristics (Table 1) and key findings (Table 3). Key findings were derived from the abstract, results, and/or discussion sections of each paper. Data consolidation and synthesis were undertaken using a textual narrative approach (Lucas et al., 2007).<sup>5</sup> We first grouped studies by life stage (childhood [mean age  $\leq 12$  years]; adolescence [mean age 13 to 17 years]; adulthood [mean age  $\geq 18$  years]), then summarized studies within each group, providing a descriptive commentary of findings related to strengths (bolded in Table 3). In the final step, we synthesized and integrated key findings across studies to draw conclusions about commonly identified strengths. We focused on personal characteristics, talents, and abilities. Broad categories of strengths were then identified through iterative discussion between three authors (KF, AW, JP), situated in a positive psychology context and loosely informed by classifications established in the character strengths literature (Peterson & Seligman, 2004).

## RESULTS

### Study selection

Our searches resulted in a total of 3472 studies (3246 in June 2020 and an additional 226 in February 2021). After removing duplicates, 3312 titles were screened, and 152 abstracts were reviewed. Of these, 75 full texts were considered, and a final 19 records were analyzed (see Figure 1). Many excluded studies ( $n = 42$ ) included data on *relative* strengths, either within-group functioning, or in comparison with other clinical or typically developing groups. Several studies ( $n = 10$ ) included information about preferences or interests of individuals with FASD but were excluded because they were not directly related to individual strengths. In many excluded studies, researchers used strengths-based language and emphasized the importance of adopting a strengths-based approach but did not measure, identify, or report on tangible strengths of individuals with FASD.

### State of the literature

#### Study characteristics

Most of the studies ( $n = 14$ ) identified were qualitative (Table 1). Two studies were quantitative, and three applied mixed methods. In most studies ( $n = 13$ ) informants were a combination of individuals with FASD and their caregivers and/or support professionals. In four studies informants were individuals with FASD, and in the remaining two studies, informants were caregivers and/or support professionals. Nine studies were focused on adults with FASD, eight on adolescents, and two on children. Sample sizes ranged from single case studies to a larger study with 94 participants. Almost all studies were

conducted in Canada ( $n = 16$ ) with a smaller number from Australia ( $n = 2$ ) and the United States ( $n = 1$ ). Most studies ( $n = 12$ ) were published in the last decade, and the earliest was in 2001.

### Content and utility appraisal

Across the six criteria used to appraise study content and utility, most ( $n = 12$ ) met two criteria or fewer, and only one study met all six (Table 2). The greatest strength of the literature was novelty of findings, where 13 studies produced new evidence related to strengths of individuals with FASD; in the other six studies, findings were similar to previous research. The goal of most studies was to explore the lived experiences of individuals with FASD or their caregivers. In only four studies, researchers intentionally identified strengths as part of their stated purpose. Evidence of strengths was often reported as a tangential finding, or part of a larger picture that was equally, or more heavily, focused on challenges ( $n = 13$ ). For many studies ( $n = 8$ ), it was unclear whether strengths of individuals with FASD were directly evaluated. Evidence-based approaches specifically designed to assess individual strengths were used in six studies. Just under half ( $n = 8$ ) of identified studies were rooted in strengths-based theory or conceptual frameworks. Most studies included at least some consideration of the importance of adopting a strengths-based approach, although very few included tangible ways in which this approach may be implemented. Instead, most discussions were focused on modifying the environment and leveraging *external* support systems to foster success for individuals with FASD.

### Summary of strengths-based findings<sup>6</sup>

#### Studies with children

We identified two studies focused on children with FASD (Table 3). The first involved the mother and teacher of an 8-year-old boy with FASD (Timler & Olswang, 2001). At school, the child was reported to thrive in a structured and consistent classroom environment and showed impressive gains and self-growth, with progress in developing manners, perspective taking, understanding the consequences of his behavior, and making appropriate choices. In another study, children with FASD were interviewed about their day-to-day living experiences (Stade et al., 2011). Interviews revealed that children had strong self-awareness; engaged in their lives through art, games, sports, and school; and expressed hope for a "good life." Participants attributed much of their success to positive parental relationships.

#### Studies with adolescents

Eight studies involved adolescents with FASD. In one study, caregivers were interviewed about their experiences raising individuals with FASD. They identified several positive characteristics,

TABLE 1 Summary of study characteristics

Authors; country	Research purpose(s)	Population	Study design (measures)
<i>Children (age 12 years and younger)</i>			
Timler and Olswang (2001); US	Examine similarities and differences between a parent and teacher's perspective about a child's strengths and challenges, with a focus on communication and social skills	Mother and teacher of an 8-year-old boy with FASD	Case study (record review; guided interviews; five in-home observations)
Stade et al. (2011); Canada	Explore children's experiences of living day-to-day with FASD	22 children (age 6 to 18 years) with FASD	Qualitative (unstructured interviews)
<i>Adolescents (age 13 to 17 years)</i>			
Duquette and Stodel (2005); Canada	Gain an understanding of the school experiences of individuals with FASD and elements of successful school experiences	Seven individuals (age 9 to 30 years) with FASD and their adoptive parents	Qualitative (open-ended questionnaires; semi-structured interviews)
Duquette et al. (2006); Canada	Examine high school persistence among adolescents with FASD	Eight adolescents (age 15 to 20 years) with FASD and their adoptive parents	Collective case study (questionnaires; in-depth semi-structured interviews, adapted from Duquette & Stodel, 2005)
Duquette et al. (2007); Canada	Explore school experiences and factors that contribute to persistence among adolescents and young adults with FASD	Eight adolescents (age 15 to 20 years) with FASD and their adoptive parents	Qualitative (surveys and in-depth semi-structured interviews); same sample as Duquette et al., 2006
Kippin et al. (2018); Australia	Examine the languages spoken and prevalence of language disorders among adolescents assessed for FASD in detention	98 adolescents (age 13 to 17 years) assessed for FASD in detention and their caregivers	Mixed-methods (interviews; CELF-4; non-word repetition task)
Hamilton et al. (2020); Australia	Explore the hopes, relationships, and school experiences of adolescents assessed for FASD in a detention setting and understand their perspectives on FASD assessment	38 adolescents (age 13 to 17 years) assessed for FASD in detention	Qualitative (interviews conducted through a yarning approach)
Mariasine et al. (2014); Canada	Investigate the perceptions of adolescents with PAE and their caregivers regarding deficits and strengths in adaptive functioning, mental health, and social skills	32 adolescents (age 13 to 20 years) with PAE (22 with an FASD diagnosis) from a community mentoring program	Quantitative (ABAS-2; SSIS; BASC-2; BERS-2)
Rogers et al. (2013); Canada	Identify aspects of resilience, and move toward a strengths-based understanding of resilience, enculturation, and offending among adolescents with FASD	94 adolescents (age 13 to 23 years) with justice involvement; 47 with FASD	Quantitative (CYRM; MIEM; SRO)
Sanders and Buck (2010); Canada	Investigate the experiences of parents raising children with FASD	11 caregivers of individuals with FASD (age 5 to 21 years)	Qualitative (unstructured interviews)
<i>Adults (age 18 years and older)</i>			
Brenna et al. (2017); Canada	Explore the subjective experience of living with FASD during young adulthood, with a focus on the educational context	21-year-old man with FASD and his parents	Qualitative case study (semi-structured interviews and PhotoVoice)
Burles et al. (2018); Canada	Understand the everyday experiences of living with FASD during young adulthood, and explore factors influencing self-identity	21-year-old man with FASD and his parents	Qualitative case study (semi-structured interviews and PhotoVoice); same sample as Brenna et al., 2017

(Continues)

TABLE 1 (Continued)

Authors; country	Research purpose(s)	Population	Study design (measures)
Knorr and McIntyre (2016); Canada	Explore the school and life experiences of adults with FASD to better understand how success is achieved	Four adults (age 19 to 30 years) with FASD	Qualitative (semi-structured interviews)
Duquette and Orders (2013a); Canada	Investigate the employment situations and outcomes of adults with FASD who were, or had been, in a post-secondary education program	13 caregivers representing 17 adults (age 19 to 44 years) with FASD; four adults (age 26 to 44 years) with FASD	Qualitative (online survey with caregivers; interviews with adults)
Duquette and Orders (2013b); Canada	Examine the post-secondary school experiences of adults with FASD to understand their perceptions and persistence	Four adults (age 26 to 43 years) with FASD; 12 adoptive parents of adults with FASD	Qualitative (online survey with caregivers; interviews with adults); <i>subset from Duquette &amp; Orders, 2013a</i>
Kapasi et al. (2019); Canada	Learn about employment experiences and impacts among adults with FASD, and conditions that contribute to success	20 adults (age 18 to 64 years) with FASD; six family members; three support professionals	Mixed methods (online or paper survey)
Rutman and Van Bibber (2010); Canada	Examine the parenting challenges, accomplishments, and support needs of adults with FASD, and identify helpful approaches for support	15 parents with suspected FASD; eight support people (e.g., parents, partners); 36 service providers	Qualitative (semi-structured interviews, repeated in some cases; small group interviews and focus groups with service providers)
Currie et al. (2016); Canada	Examine the services and supports experienced by adults with FASD, and their contact with the criminal justice system	14 adults (age 18 to 41 years) with FASD; 11 support persons	Qualitative (semi-structured interviews)
Pei et al. (2016); Canada	Explore the experiences of individuals with FASD in the criminal justice system	Nine adults (age 24 to 59 years) with FASD; 12 justice service providers	Qualitative (semi-structured interviews)

Note: ABAS-2, Adaptive Behavior Assessment System, Second Edition; BASC-2, Behavior Assessment System for Children, Second Edition; BERS-2, Behavioral and Emotional Rating Scale, Second Edition; CELF-4, Clinical Evaluation of Language Fundamentals, Fourth Edition; CRYM, Child and Youth Resilience Measure; MEIM, Multigroup Ethnic Identity Measure; SRO, The Self Report of Offending Questionnaire; SSIS, Social Skills Improvement Rating Scale.

talents, and abilities of their children and adolescents with FASD, including gifts in art, music, and athletics; and being loyal, friendly, kind, sweet, compassionate, and forgiving (Sanders & Buck, 2010). Mariasine et al. (2014) analyzed caregiver and adolescent ratings of adolescents' adaptive function, social skills, mental health, and personal strengths. Adolescents rated themselves as having affective strength, or the ability to give and receive affection.

Three studies with adolescents were part of a research program designed to explore school experiences and persistence in FASD (Duquette & Stodel, 2005; Duquette et al., 2006, 2007). Interviews were conducted with individuals with FASD and their caregivers, and numerous strengths were identified. Positive characteristics of students with FASD included being curious, willing to please, goal-oriented, hard working, and committed. Talents and abilities were also identified in social skills, building and mechanical skills, and computers and video games; strong vocabulary and memory for "certain things"; and talent in art and athletics. Although some participants perceived themselves to be well integrated socially, caregivers expressed concerns about the quality of the students' interpersonal relationships.

The last three studies involving adolescents were conducted in justice contexts. The first study was specific to language functioning among justice-involved adolescents assessed for FASD (Kippin et al., 2018). Adolescents presented with a rich diversity in their linguistic backgrounds, with eight first languages (19 different languages in total) and 32% of adolescents being multilingual. Researchers described the potential positive impacts of multilingual learning and communication on an individual's sense of pride and self-esteem, as well as connection to cultural identity and storytelling for Indigenous adolescents. In a second study with a subset of the same justice-involved adolescents, researchers explored participants' hopes, relationships, and experiences (Hamilton et al., 2020). Adolescents were reported to maintain happiness, hope, purpose, and aspirations for the future despite significant past trauma. Many also reported having strong connections with family, some positive school experiences, and participants who identified as Indigenous reported connection to their culture. In the third study, researchers investigated the relationships between resilience, enculturation, offending behavior, and FASD (Rogers et al., 2013). Resilience was associated with stronger cultural identity and lower levels of self-reported lifetime offending



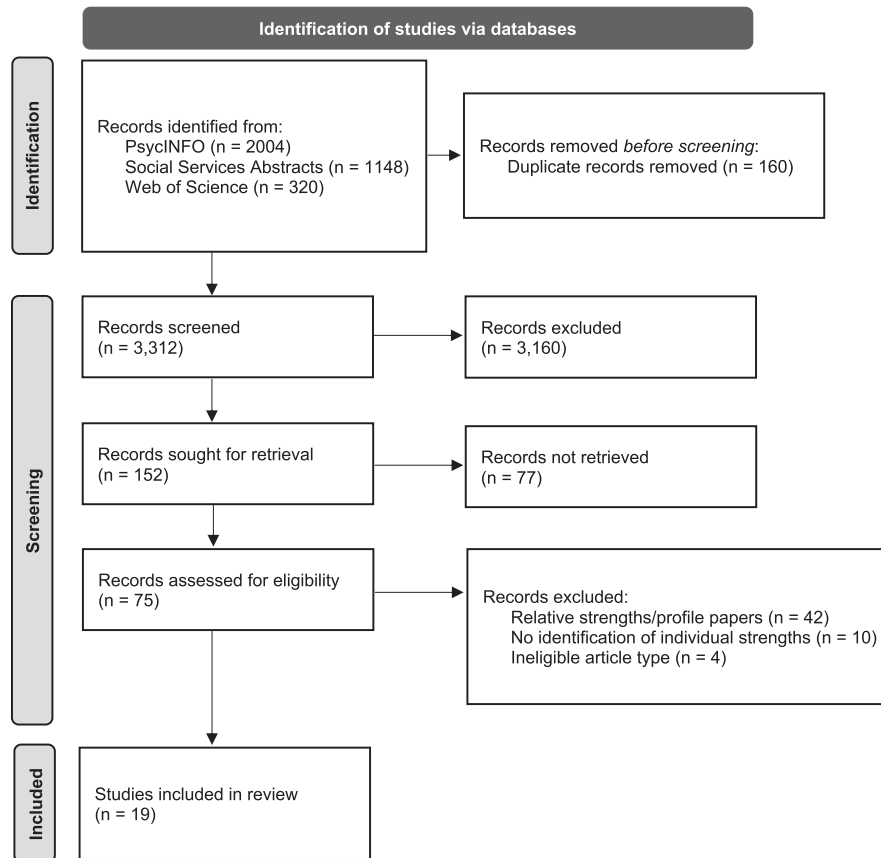


FIGURE 1 PRISMA flow chart of study selection

behaviors for all adolescents. Among participants with FASD, those with stronger cultural identity were more resilient at the individual and caregiver levels, and experienced increased feelings of belonging compared to those with lower cultural identity.

## Studies with adults

We identified nine studies involving adults with FASD. Knorr and McIntyre (2016) interviewed four young adults with FASD about their school and overall life experiences and described the participants' foundational "resilient attitude" which supported them to overcome hardship and was a significant source of strength and success. Participants described other strategies and sources of strength and success, including asking for help, taking elective courses in school, receiving an FASD diagnosis, accessing support from community groups and Elders, and helping other people heal from past struggles.

Several studies were conducted in the contexts of post-secondary education and employment. In two studies, researchers interviewed adults with FASD and their caregivers and described many of the adults' successes, including completing post-secondary school; maintaining stable employment; engaging in volunteer work and community outreach; and balancing the competing demands of parenthood with school and employment (Duquette & Orders, 2013a, 2013b). Several factors supported success, including positive

individual characteristics such as being goal-directed, hard working, determined, and having strong coping skills; as well as extrinsic sources such as having supportive teachers, and helpful family and friends. Notably, several caregivers reported that individuals with FASD who present as articulate and capable may be less likely to receive supports because of their "superficial" competence in these settings (Duquette & Orders, 2013a). In another study of employment experiences of adults with FASD, Kapasi et al. (2019) reported numerous positive experiences that helped participants to develop work-related skills; facilitate personal growth; discover personal strengths; increase their autonomy and social connection; promote self-advocacy; and improve their sense of pride and self-esteem.

Two articles were from a single case study, using Photovoice and interviews with an individual with FASD and his parents to explore his subjective experiences of young adulthood (Brenna et al., 2017; Burles et al., 2018). He was reported to have significant "resilience and self-awareness," evidenced by his adaptability in managing the challenges of living with FASD, and his ability to recognize his own strengths, which supported his self-advocacy. Self-identified strengths included talent in acting; visual-spatial learning and memory skills; working with his hands; and observing others; as well as positive characteristics such as optimism, persistence, motivation, and passion. When discussing his desire for independence and increased responsibility, the young man underscored the necessity of support, especially from peers. He understood FASD to be only one

TABLE 2 Study content and utility appraisal

Author(s)	Research purpose	Direct question(s)	Theoretical framework	Evidence-based approach	Novelty of findings	Leveraging strengths	Total
<i>Children (age 12 years and younger)</i>							
Timler and Olswang (2001)	Yes	Yes	No	No	No	No	2
Stade et al. (2011)	No	No	No	No	No	Yes	1
<i>Adolescents (age 13 to 17 years)</i>							
Duquette and Stodel (2005)	No	Unclear	No	No	Yes	No	1
Duquette et al. (2006)	No	Unclear	Yes <sup>a</sup>	No	No	No	1
Duquette et al. (2007)	No	Unclear	Yes <sup>a</sup>	No	No	No	1
Kippin et al. (2018)	No	No	No	No	Yes	Yes	2
Hamilton et al. (2020)	No	Unclear	Yes <sup>b</sup>	Yes <sup>f</sup>	Yes	Yes	4
Mariasine et al. (2014)	Yes	Yes	No	Yes <sup>g</sup>	Yes	No	4
Rogers et al. (2013)	Yes	Yes	Yes <sup>c</sup>	Yes <sup>h</sup>	Yes	Yes	6
Sanders and Buck (2010)	No	Unclear	No	No	No	No	0
<i>Adults (age 18 years and older)</i>							
Brenna et al. (2017)	No	Yes	Yes <sup>d</sup>	Yes <sup>i</sup>	Yes	Yes	5
Burles et al. (2018)	No	Unclear	No	Yes <sup>i</sup>	Yes	Yes	3
Knorr and McIntyre (2016)	Yes	Yes	Yes <sup>b</sup>	No	Yes	Yes	5
Duquette and Orders (2013a)	No	Unclear	No	No	Yes	No	1
Duquette and Orders (2013b)	No	Unclear	Yes <sup>a</sup>	No	No	No	1
Kapasi et al. (2019)	No	No	Yes <sup>e</sup>	Yes <sup>j</sup>	Yes	No	3
Rutman and Van Bibber (2010)	No	Yes	No	No	Yes	No	2
Currie et al. (2016)	No	Yes	No	No	Yes	No	2
Pei et al. (2016)	No	No	No	No	Yes	Yes	2
Total	4	7	8	6	13	8	

Note: Appraisal domains were operationalized as: *research purpose* = researchers stated that their purpose was to explore or identify strengths of individuals with FASD; *direct questions* = researchers directly evaluated strengths in individuals with FASD; *theoretical framework* = researchers conceptualized or defined strengths within an established theoretical framework; *evidence-based approaches* = researchers used evidence-based approaches or tools to study strengths; *novelty of findings* = researchers contributed novel findings about strengths; and *leveraging strengths* = researchers discussed how strengths may contribute to, and be cultivated to promote fulfillment and well-being for individuals with FASD. Total ratings were tallied whereby "yes" = 1, "unclear" = 0, and "no" = 0.

<sup>a</sup>Tinto's Student Integration model.

<sup>b</sup>Recovery capital.

<sup>c</sup>Theories of resilience.

<sup>d</sup>Schwab's curriculum commonplaces.

<sup>e</sup>Supported employment model.

<sup>f</sup>Research yarning.

<sup>g</sup>Behavioral and Emotional Rating Scale, Second Edition.

<sup>h</sup>Child and Youth Resilience Measure.

<sup>i</sup>Photovoice.

<sup>j</sup>These researchers conducted a review of the academic and grey literature to ensure current evidence on employment-related strengths and challenges was reflected in their survey.

part of his multifaceted identity, and at times a source of strength and self-worth (Brenna et al., 2017). In the second paper, researchers reported that the young man's strong self-awareness, positive coping skills, adaptability, recognition of personal strengths, and resilience supported his transition to adulthood (Burles et al., 2018).

Two studies were conducted to explore the lived experiences of adults with FASD in the justice system. In the first study, Pei et al. (2016) interviewed adults with FASD and their service providers

to examine risk factors related to justice-involvement. They identified numerous strengths that were perceived to assist the adults to move beyond the justice system, including hopefulness, motivation to change, and resilience. Currie et al. (2016) interviewed another group of adults with FASD and their support professionals to better understand their perspectives on services and supports for adults with FASD with and without justice-involvement. All individuals with FASD (regardless of justice-involvement) and



TABLE 3 Summary of findings

Study	Key findings (strengths-based findings in bold)
<i>Children (age 12 years and younger)</i>	
Timler and Olswang (2001)	<ul style="list-style-type: none"> <li>• Discordant viewpoints between home and school: <b>strengths were emphasized in the classroom (i.e., he was described as “empowered” and as making “dramatic progress”)</b> but challenges were reported at home (i.e., inconsistency in his behaviors, which was attributed to his disability)</li> <li>• Both the mother and teacher attributed the child's success at school to the highly structured and consistent classroom setting</li> <li>• Discordance about the child's capacity to understand the consequences of his behavior, his ability to generalize and maintain appropriate behavior outside of the classroom, and about optimal educational programming for the child in the future</li> </ul>
Stade et al. (2011)	<ul style="list-style-type: none"> <li>• <b>Participants reported on efforts to overcome daily challenges and “participate in life” through art, games, sports, and school</b></li> <li>• Three themes were identified: (1) <i>knowing the disability</i> (understanding the limitations of the disability, experiencing the unfairness of the FASD etiology); (2) <i>feeling alone</i> (with other kids)/feeling supported (by parents); and (3) <b>overcoming the disability</b></li> </ul>
<i>Adolescents (age 13 to 17 years)</i>	
Duquette and Stodel (2005)	<ul style="list-style-type: none"> <li>• <b>Several strengths were reported by parents, including willingness to please, hard-working, mechanical/building skills, computer skills, curiosity, social skills, memory for certain things, “fun to be with”</b></li> <li>• <b>Children identified their own strengths in sports, arts (drama, singing, visual art, music), and video games</b></li> <li>• School experiences for most participants with FASD were marked by learning/behavioral challenges and modified programming</li> <li>• Success was defined in terms of academic achievement, obtaining a diploma, social skills, and reaching potential</li> <li>• Contributors to school success included: access to appropriate services and programs that draw on the child's strengths and address challenges; having knowledgeable and caring teachers; obtaining an FASD diagnosis which allows parents to share information about the child's strengths and challenges and to access services; and support and advocacy from parents</li> <li>• Transition to adulthood was characterized by challenges maintaining employment despite having received job skills training in school; for those who were working, some developed effective coping strategies and parents often continued to provide extensive support</li> </ul>
Duquette et al. (2006)	<ul style="list-style-type: none"> <li>• <b>Adolescents expressed hopes and goals for the future</b> but no plans for achieving vocational goals</li> <li>• <b>Strengths were identified in arts (singing, drawing, poetry), vocabulary, work habits</b></li> <li>• All adolescents expressed interest in sports and preferred hands-on learning strategies</li> <li>• Most adolescents felt socially integrated, but parents questioned the closeness and quality of their children's friendships</li> <li>• <b>Students were committed to and took pride in completing high school</b></li> <li>• Researchers described adolescents as being dependent on environmental protective factors, especially parental advocacy</li> </ul>
Duquette et al. (2007)	<ul style="list-style-type: none"> <li>• <b>Seven of 16 caregivers identified specific strengths</b>, and two reported that their children had no strengths</li> <li>• <b>Strengths included hands-on skills and arts, and students were described as goal-oriented, hard-working, and committed</b></li> <li>• Findings were primarily deficit-focused and emphasized students' behavioral and learning challenges</li> <li>• Students were proud of their accomplishments; success was defined differently (e.g., “passing courses,” “doing my work”)</li> <li>• Parental support and advocacy, accommodations, and opportunities to interact with peers were critical for persistence</li> </ul>
Kippin et al. (2018)	<ul style="list-style-type: none"> <li>• Results were focused primarily on language difficulties, though <b>researchers also noted diverse linguistic backgrounds</b></li> <li>• Adolescents had eight first languages, 19 different languages in total, and one-third (32%) identified as multilingual</li> </ul>
Hamilton et al. (2020)	<ul style="list-style-type: none"> <li>• Despite histories of significant adversity, <b>participants possessed a range of recovery capital assets, including a sense of purpose, hope, future aspirations, positive school experiences, and positive social and cultural connection</b></li> </ul>
Mariasine et al. (2014)	<ul style="list-style-type: none"> <li>• <b>Adolescents rated themselves as significantly better than the mean in terms of affective strengths (i.e., ability to give and receive affection)</b>; however, both caregiver and adolescent ratings across other areas of adaptive function, social skills, mental health, and personal strengths were significantly lower than the normative means</li> <li>• Adolescent ratings of themselves were significantly higher than caregiver ratings in almost all areas</li> </ul>

(Continues)

TABLE 3 (Continued)

Study	Key findings (strengths-based findings in bold)
Rogers et al. (2013)	<ul style="list-style-type: none"> <li>• <b>Adolescents with and without FASD demonstrated similar, “moderate” levels of enculturation and resilience</b></li> <li>• <b>Enculturation was positively associated with resilience</b></li> <li>• Differential patterns of association for components of enculturation and resilience were found between adolescents with and without FASD</li> <li>• For all adolescents, lower levels of resilience were associated with higher lifetime self-reported offending behavior; group differences were again found between specific components of resilience and offending</li> </ul>
Sanders and Buck (2010)	<ul style="list-style-type: none"> <li>• <b>One theme, <i>my child's gifts</i>, was focused on strengths; specific gifts included artistic, musical, athletic, loyal, perseverant, friendly, desire to make others happy, kind, compassionate, forgiving, and spunky</b></li> <li>• Eight other themes were identified, largely focused on challenges, frustrations, and deficits associated with the disability: (1) <i>something's not right</i>, (2) <i>receiving a diagnosis</i>, (3) <i>attitudes toward birth parents</i>, (4) <i>living in a war zone</i>, (5) <i>understanding my child</i>, (6) <i>getting support</i>, (7) <i>re-defining success</i>, and (8) <i>lifelong parenting</i></li> </ul>
<i>Adults (age 18 years and older)</i>	
Brenna et al. (2017)	<ul style="list-style-type: none"> <li>• <b>Four themes related to the young man's “resilience and strategic self-awareness”: (1) <i>balancing support with independence</i>; (2) <i>awareness of strengths and challenges</i>; (3) <i>strategies for navigating life with FASD</i>; and (4) <i>self-identified needs and advice for others</i></b></li> <li>• <b>Self-identified strengths included: visual learning ability, spatial memory, observant of others, adaptable, hands-on skills; using these strengths supported his ability to pay attention and motivation played a key role in overcome difficulties</b></li> <li>• <b>He drew connections between his strengths and his FASD; described by researchers as optimistic and persistent</b></li> <li>• He acknowledged his limitations in school but reported that all his teachers had been supportive</li> <li>• He emphasized the importance of peer support/sponsorship (beyond parents) in helping to navigate challenges</li> </ul>
Burles et al. (2018)	<ul style="list-style-type: none"> <li>• <b>The young man was reported to be resilient, self-aware, adaptable, and have “optimism and hope”</b></li> <li>• <b>He perceived FASD to be only one part of his multifaceted identity, and in some ways, a source of strength; he was able to identify personal strengths amongst the challenges and held future aspirations</b></li> <li>• <b>Specific strengths identified: acting, visual-spatial learning and memory, perceptive/observant of others, adaptability/flexibility, hands-on skills, optimism, persistent, motivated, and passionate</b></li> <li>• <b>Photos illustrated his strengths: (1) a screwdriver (ability to work with his hands), and (2) a theatre program (acting skills)</b></li> <li>• <b>He possessed many positive coping skills and felt better able to succeed when motivated and passionate about something</b></li> <li>• Overall themes identified: (1) <i>recognizing strengths and challenges</i>; (2) <i>balancing independence with accepting support</i>; (3) <i>reconciling FASD with a desire to fit in</i>; and (4) <i>developing resilience and putting challenges in perspective</i></li> </ul>
Knorr and McIntyre (2016)	<ul style="list-style-type: none"> <li>• <b>Participants’ resilience was emphasized throughout, and described by researchers as “powerful, bold, and often selfless”</b></li> <li>• All participants described histories of significant adversity (e.g., abuse, trauma, child welfare involvement, substance use, high-risk behaviors) but <b>notable resilience and success in educational and employment endeavors</b></li> <li>• Three themes: (1) <i>“I don't fit in”</i> (social, learning, and behavioral challenge at school, and anger with diagnosis); (2) <i>intergenerational adversity</i> (alcoholism, child abuse, and addiction); and (3) <b><i>healing the wounds (sources of strength, success, and helping others)</i></b></li> </ul>
Duquette and Orders (2013a)	<ul style="list-style-type: none"> <li>• Four contributors to success: supportive teachers, <b>coping skills, hard work/determination</b>, help from family/friends</li> <li>• Participants described many challenges and barriers to post-secondary and employment success for adults with FASD</li> <li>• Diverse career paths were reported: culinary arts, dental technology/assistant, medical office professional, welding, hairdressing, performing arts, music, and computer technology</li> <li>• All participants expressed difficulty maintaining long-term employment</li> <li>• Some individuals who are “superficially” capable and articulate were denied or removed from support systems and structures</li> <li>• Some individuals re-defined success to be more feasible, attainable, and meaningful for them</li> </ul>
Duquette and Orders (2013b)	<ul style="list-style-type: none"> <li>• <b>Some participants were reported to have strong academic and reading skills, and to be articulate and goal-directed</b>, but findings were largely focused on challenges with behavior, learning, social interaction, and mental health and substance use concerns</li> <li>• Parental support and advocacy were identified as important facilitators to post-secondary persistence</li> <li>• Importance of “goodness of fit” between individual characteristics and post-secondary program demands</li> </ul>

(Continues)

TABLE 3 (Continued)

Study	Key findings (strengths-based findings in bold)
Kapasi et al. (2019)	<ul style="list-style-type: none"> <li>• <b>Employment promoted participants' sense of feeling valued, proud, respected, and able to discover their personal strengths</b></li> <li>• Four conditions contributing to success: finding the right fit (matching workplace with employee's abilities, interests, skills, and goals); using relational supports (from family members, spouses, support workers; and people at work); identifying as having FASD (disclosing their disability at work if needed and comfortable); responding to challenges (accommodations and supports)</li> <li>• Employment experience varied, but was most commonly in the service industry; most adults with FASD were reported to have experienced challenges obtaining and maintaining employment</li> <li>• Supportive work environments were perceived to foster personal growth and skills necessary for success (punctuality, communication, efficiency, time management, emotional regulation, teamwork, social skills, and money management)</li> <li>• Participants also discussed the positive impacts of employment: increased autonomy through remuneration; increasing self-esteem; developing social connection; and becoming advocates</li> </ul>
Rutman and Van Bibber (2010)	<ul style="list-style-type: none"> <li>• <b>Participants discussed their personal accomplishments and helpful strategies</b></li> <li>• <b>Parenting hopes and goals were also discussed (providing a "better" life for their children; breaking the cycle of substance use, abuse, child welfare involvement) which motivated them to navigate challenging circumstances</b></li> <li>• Emphasis was placed on participants' parenting challenges and barriers, including direct impacts of prenatal alcohol exposure and adverse experiences associated with FASD; negative societal attitudes about FASD; policy barriers such as unsupportive child welfare policies and concerns with access to resources and support</li> </ul>
Currie et al. (2016)	<ul style="list-style-type: none"> <li>• <b>All adults with FASD were able to identify one or more personal strengths: artistic, helpful, generous, and kind; hands-on mechanical skills, sports, visual tasks, and caring for children</b></li> <li>• <b>All support persons were able to identify strengths of adults with FASD, including helpfulness, intelligence, and self-awareness of strengths, and reported that they provide supports based on these strengths</b></li> <li>• 57% of participants with FASD were reported to be involved with the justice system; early diagnosis and absence of substance use were associated with more positive outcomes</li> </ul>
Pei et al. (2016)	<ul style="list-style-type: none"> <li>• <b>Several strengths were identified that would support individuals with FASD to move beyond the system: hope for an alternative future; willingness to change; and resilience/ability to "stand up for themselves"</b></li> <li>• Three major themes were identified related to factors that: (1) <i>primed individuals with FASD to enter the justice system</i>; (2) <i>hindered them within the system</i>; and (3) <b>strengthened them to move beyond the system</b></li> <li>• Factors were characterized as biological (neurobiological and cognitive), psychological (mental health, substance use, instability), and social (environmental adversity, lack of social and community support)</li> </ul>

their service providers were able to identify personal strengths, including positive characteristics such as helpfulness, generosity, kindness, and self-awareness, as well as talents and abilities in art, sports, hands-on mechanical tasks, and caring for children.

Finally, in a unique study with parents with FASD, Rutman and Van Bibber (2010) interviewed parents, their support people, and service providers, and reported on parenting hopes and goals, accomplishments and strategies, and challenges and barriers. Many of the parents' hopes and goals centered around their desire to "break the cycle" of abuse, child welfare-involvement, and substance use and provide a "better" life for their children. Parents recognized their own accomplishments and successful strategies for parenting, including maintaining custody or active involvement in their children's lives, developing coping strategies for everyday life, and reducing or abstaining from substance use.

## Synthesis

The studies identified in this review provide emerging evidence of the many positive characteristics, talents, and abilities that may contribute to fulfillment and well-being for individuals with FASD. Across

the lifespan, individuals with FASD were reported to have a range of talents and abilities such as art, music, sports, language, visual-spatial skills, kinesthetic learning, and computers/video games. In addition to these talents and abilities, positive character attributes included kindness, perseverance, curiosity, and hopefulness. Integrating these findings in the context of positive psychology and character strengths, we identified five broad categories of strengths: (1) strong self-awareness; (2) receptiveness to support; (3) capacity for human connection; (4) perseverance through challenges; and (5) hope for the future (see Supporting Information for more details).

### Strong self-awareness

Individuals with FASD showed notable self-awareness, not only in terms of their challenges and limitations, but also their unique strengths and capabilities. FASD was perceived to be only one part of an individual's multifaceted identity, and in some cases, an important source of strength and self-worth. Some individuals reported a sense of pride, self-admiration, and confidence despite their personal challenges. For other individuals, cultural identity was a significant part of their sense of self and an important source of strength and resilience.

Opportunities to discover and nurture their personal strengths were shown to enhance self-esteem and self-worth for individuals with FASD. As well, recognition of their strengths and limitations helped some individuals with FASD to self-advocate, share their wisdom, and provide advice to others living with FASD or supporting someone with the disability. Although self-awareness is not a typical character strength in and of itself, it has been associated with bravery, persistence, social intelligence, fairness, leadership, and self-regulation (Peterson & Seligman, 2004), and may serve as an important foundation for fulfillment and well-being for individuals with FASD.

### Receptiveness to support

Another common strength identified across studies was receptiveness to support. This strength was recognized as being foundational for progress, growth, and thriving. For many individuals with FASD, having positive relationships with family members and others helped them to feel comfortable seeking and receiving support. Receptiveness to support may become increasingly relevant during the transition to adulthood, when finding a balance between independence and the need for help is a central focus. Importantly, when an individual is receptive to support, and supports are matched with their needs and strengths, opportunities can arise for fulfilling and meaningful experiences of supported autonomy. Indeed, the many success stories of people with FASD illustrate their potential for positive outcomes. Although not a character strength per se, willingness to receive support requires both humility (i.e., acknowledging and accepting one's imperfections) and integrity (i.e., being true to oneself and taking responsibility for one's feelings and actions, even when it is not easy to do; Peterson & Seligman, 2004) and may set an individual up for long-term fulfillment and well-being.

### Capacity for human connection

Across studies, researchers emphasized the social nature of individuals with FASD. At all ages, individuals with FASD were described as empathic, helpful, affectionate, generous, compassionate, and selfless. In many studies, individuals were characterized as loving and kind, both of which are considered interpersonal character strengths that enhance the well-being of oneself and others (Peterson & Seligman, 2004). Individuals with FASD sought to improve the lives of others through various means, including community outreach, mentorship, and volunteering. Notably, some individuals considered the challenges they experienced to be opportunities for improving the lives of others. Interpersonal connection was emphasized as an important source of strength, resilience, and fulfillment for many individuals. Although some individuals with FASD perceived themselves to be socially connected, others reported feeling isolated, and many caregivers noted concerns about friend choices and the potential to be taken advantage of. This highlights the need to balance both the social strengths and the vulnerabilities of people with FASD to promote fulfillment and well-being.

### Perseverance through challenges

Individuals with FASD were frequently reported to be perseverant and able to overcome challenges. Qualities such as determined, persistent, committed, goal-directed, and hard working were often used to characterize individuals of all ages. Relatedly, many individuals with FASD had life histories marked by significant adversity and trauma but were often reported to be profoundly resilient. The perseverance demonstrated by individuals with FASD seems to be a strength critical to their ability to overcome adversity, and when combined with other internal and external protective factors, may contribute to resilience across the lifespan (Peterson & Seligman, 2004),

### Hope for the future

Across studies, individuals with FASD were reported to maintain hope for a positive future. They were often described as optimistic and motivated, and many articulated tangible future goals. Even in challenging circumstances such as being incarcerated or lacking custody of their children, individuals held hope for a better life for both themselves and their children. This ability to articulate goals and aspirations and believe in a good future seemed to fuel motivation for people with FASD, and may be further cultivated to promote fulfillment, health, and well-being (Peterson & Seligman, 2004).

## DISCUSSION

To better understand the current state and contributions of the strengths-based FASD literature and identify areas for future research, we reviewed the evidence on positive characteristics, talents, and abilities that may contribute to, and be cultivated to promote fulfillment and well-being for individuals with FASD. Although investigation into strengths of individuals with FASD has increased over the last decade, there remains a dearth of research in this area, with our review yielding only 19 studies. Most studies were designed to qualitatively explore the lived experiences of adolescents and adults with FASD in school, employment, and justice contexts. When findings related to strengths were reported, they were often noted tangentially, and situated within more comprehensive discussions of the challenges, stressors, and barriers to success. Often, strengths were reported using soft or tokenistic language (e.g., sweet, spunky), referring to attributes that are more difficult to characterize, measure, and cultivate. Few studies were situated within broader strengths-based conceptual frameworks or implemented using evidence-based tools or approaches designed to assess strengths.

Considering these findings from a positive psychology perspective and in the context of character strengths, we identified several broad strengths associated with individuals with FASD. First, individuals were reported to have *strong self-awareness*. The ability to recognize one's own abilities, personality traits, and interests is central to the development of one's sense of self and identifying

these central positive qualities can help people to thrive in their everyday lives (Niemiec et al., 2017). To help individuals with FASD build their sense of self, we can begin by first learning what they understand about themselves, supporting them to self-advocate, and then building self-worth and confidence as they are respected as the central player in their own life. For individuals with disabilities, having a strong sense of self-identity can create feelings of connection with others in the disability community; improve their ability to cope with daily stressors and challenges; and support them in finding meaning in their lives (Dunn & Burcaw, 2013). For people with FASD, nurturing self-awareness may promote fulfillment, well-being, and happiness as it has been shown to do in other populations (Kyte, 2016; Thieme et al., 2013). Building on this self-awareness, a second common strength of individuals with FASD is *receptiveness to support*. In non-FASD populations, openness to accepting help has been shown to increase opportunity (Van De Ven et al., 2008), improve self-care strategies (Norburn et al., 1995), and enhance relationships with support providers (Marigold et al., 2014). In these ways, receptiveness to support among individuals with FASD may help to increase engagement, sense of agency, self-determination, and well-being.

Third, individuals with FASD were often characterized as being kind, compassionate, and caring, emphasizing a *capacity for human connection*. These foundational qualities are notable character strengths that can have numerous positive impacts on happiness and well-being for people with disabilities (Niemiec et al., 2017). Although these findings highlight a strong desire for interpersonal connection among individuals with FASD, they are juxtaposed with previous research on the social challenges of people with FASD (Kully-Martens et al., 2012). Therefore, encouraging individuals with FASD to recognize and cultivate their interpersonal strengths while balancing consideration of social vulnerability will be important for creating opportunities for safe and fulfilling human connection.

Lastly, we identified *capacity to persevere* and *hope for the future* as character strengths common in individuals with FASD. These strengths are especially notable given the complex trauma and environmental adversity experienced by many individuals. When combined, perseverance, hope, and optimism may protect an individual against some of the negative impacts of adversity and ultimately lead to resilience, growth, and thriving (Niemiec, 2020). Moreover, supporting individuals with FASD to make and attain meaningful and realistic goals in their lives may influence their experience of self-determination, agency, and overall well-being (Shogren et al., 2017b). The ability to maintain hope and envision life beyond the present moment is a strength, that when nurtured, may be a powerful contributor to the health and well-being (Ciarrochi et al., 2015; Niemiec et al., 2017).

## Moving forward

Although the foundation of strengths-based research in FASD is growing, considerable gaps remain. More work is needed to

understand how we can more meaningfully conceptualize, identify, cultivate, and leverage the strengths of this diverse population.

## Conceptualizing strengths

There is a significant lack of research on how strengths are conceptualized and defined in the context of FASD. Clear conceptualization of strengths will help to ensure shared understanding and communication between stakeholders around what are considered strengths, why they are important in this population, and how we may investigate them more intentionally and rigorously. Efforts are needed to conceptualize and define *meaningful* strengths that may be associated with positive impacts and outcomes. This research should be conducted in partnership with individuals with FASD and their families to ensure that lived experiences contribute to the research process. Participatory research not only enhances the relevance of studies, but also leads to enriched understanding of the research topic; higher quality research; more effective knowledge translation; and increased capacity, empowerment, and ownership for all stakeholders (Cargo & Mercer, 2008; Jagosh et al., 2012). Simultaneously, research must balance the need for identifying strengths with the realities of living with FASD so that this experience can be represented authentically.

Conceptualization of strengths in FASD should be situated in an established theoretical framework. Many frameworks are relevant to FASD, and although we have chosen to contextualize this study within positive psychology, other pertinent frameworks include ecological systems (Bronfenbrenner, 1979), life course (Elder, 1998), and growth mindset (Dweck, 2015) theories, among others. Regardless of the specific theoretical approach, working from an established framework will help to ensure sound rationale, a cohesive and rigorous design, and theory-driven interpretation of the emerging evidence of strengths in individuals with FASD.

## Identifying strengths

Building upon a clearer conceptualization and definition of strengths in FASD, we must then begin to apply evidence-based tools to identify and assess individual strengths. Various approaches (evidence-based and otherwise) exist for evaluating strengths in the general population and in individuals with disabilities. Existing approaches range from informal qualitative conversations to empirically validated scales (Tedeschi & Kilmer, 2005), but very few have been applied in the FASD population. Evidence-based measurement approaches (both quantitative and qualitative), rooted in solid conceptual frameworks, will help to improve consistency and communication across the field. Identifying strengths can provide many benefits, including improving an individual's self-concept, promoting confidence and empowerment, informing individualized treatment planning, and encouraging a shift away from a deficit-focused narrative. Increasing awareness



of personal strengths allows for individuals to reflect on and integrate strengths into their lives, potentially increasing the foundation for building resources and well-being (Fredrickson & Losada, 2005; Proyer et al., 2013).

## Cultivating and leveraging strengths

Lastly, more research is needed to better understand how research evidence can be meaningfully translated into practice and daily life to maximize positive impacts for individuals with FASD and their families. There is growing evidence for strengths-based interventions and their positive impacts in non-FASD populations. However, very little is currently known about how strengths may be cultivated and leveraged to improve quality of life and outcomes for people with FASD. Moving from identification to the integration of strengths in both assessment and intervention for people with FASD is crucial. Highlighting and integrating strengths in meaningful ways allows these characteristics to be promoted and capitalized upon, to mitigate challenges, and improve overall well-being in everyday life. The adoption of strengths-based approaches should be prioritized across settings and professions, such as primary care, mental health and substance use, education, social services, and justice, given the complexity of FASD and its relevance within all these systems (Masotti et al., 2015). Across contexts, assessment and intervention approaches should consider both strengths and vulnerabilities, providing the capacity for a more protective and coping-focused process (Laija-Rodriguez et al., 2013).

## Limitations

Despite its contributions, this study has also several limitations. First, with the growing momentum of positive psychology and strengths-based research in the broader disability literature, there is increased interest and research to identify strengths of individuals with FASD. Because we excluded dissertations, theses, and grey literature, we may have missed important emergent evidence. Also, we recognize that leveraging individual strengths is often dependent on external supports, thus our exclusion of studies on strengths of caregivers and families, as well as intervention research, limits our ability to understand the role that these supports may play in cultivating individual strengths. More research is needed to consider how individual strengths and broader ecological factors work together to best support positive outcomes. Additional research on interventions that both identify and build upon strengths of individuals with FASD is a critical area for future work.

## CONCLUSION

An abundance of evidence highlights the significant challenges, vulnerabilities, and potential for adverse outcomes among individuals

with FASD. However, it is clear from the broader disability and more focused FASD literature that failing to see beyond these deficits has considerable potential for harm. To balance the narrative and tell the whole story of FASD, we must both acknowledge the challenges and realities of living with a complex NDD and seek to identify positive characteristics and recognize the potential for fulfillment and well-being. In this study, we identified a preliminary but critical body of evidence that underscores the inherent strengths of individuals with FASD. Findings reflect the remarkable diversity of this population and lay important groundwork for future strengths-based FASD research and practice. Future work in the area should be intentional, methodologically rigorous, and theoretically driven. Priorities for moving the field forward include more clearly conceptualizing and defining strengths in this population; applying evidence-based approaches for identifying and measuring strengths; and investigating how identified strengths can be cultivated and leveraged to promote well-being and positive outcomes. Critically, this work must be conducted in partnership with individuals with FASD and their families to ensure that research is authentic, meaningful, and honors lived experiences.

## ACKNOWLEDGMENTS

The authors would like to acknowledge Sophie Regalado, Research and Scholarly Communications Librarian at the Northern Ontario School of Medicine for peer reviewing the search strategy.

## CONFLICT OF INTEREST

We have no conflicts of interest to declare.

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## ENDNOTES

- <sup>1</sup> This included strengths objectively measured by researchers; perceived by individuals with FASD; or reported by caregivers, other family members, or service providers.
- <sup>2</sup> Studies on interventions, external supports, or environmental protective factors were excluded to maintain the focus on identifying *individual* strengths of people with FASD. Studies on relative strengths (i.e., absence of deficit) were also excluded. Review papers, commentaries, editorials, book chapters, theses and dissertations, and conference proceedings were excluded.
- <sup>3</sup> We used a modified CASP qualitative appraisal checklist, adapting and adding items to tailor the tool for our research purpose. Modifications were informed by the collective expertise of the research team and with reference to qualitative methodological considerations, the FASD research field, and positive psychology approaches.
- <sup>4</sup> We categorized studies as either evidence-based or not depending on whether there was previous research to support the use of their tool/approach for measuring strengths.
- <sup>5</sup> A “commentary reporting on study characteristics, context, quality, and findings, using the scope, differences, and similarities among studies... to draw conclusions across the studies.” This approach involved three steps: (1) study grouping, (2) production of commentaries, and (3) synthesis of findings.
- <sup>6</sup> For a more complete summary of all study findings, refer to Table 3.



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**How to cite this article:** Flannigan, K., Wrath, A., Ritter, C., McLachlan, K., Harding, K. D., Campbell, A., Reid, D., & Pei, J. (2021). Balancing the story of fetal alcohol spectrum disorder: A narrative review of the literature on strengths. *Alcoholism: Clinical and Experimental Research*, 45, 2448–2464. <https://doi.org/10.1111/acer.14733>

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