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Sex offender treatment professional perceptions of Fetal Alcohol Spectrum Disorder (FASD) in the Midwest

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ABSTRACT

Fetal Alcohol Spectrum Disorder (FASD) is a neurodevelopmental condition that is precipitated by prenatal alcohol exposure. Typified by cognitive, social, and adaptive functioning impairments, FASD places impacted individuals at an elevated risk for involvement in the criminal justice system. In particular, it has been reported that some individuals diagnosed with FASD engage in inappropriate sexual behaviors. Because professionals working in the field of sexual offender treatment have the potential to strongly influence their clients, this study surveys professionals that provide treatment services to sexual offenders. Topics queried include knowledge of FASD, the role of FASD in criminal behavior, and training opportunities. The key findings from this study include that the respondents readily recognized symptoms, deficits, and consequences of FASD, but had very few opportunities to receive advanced training on FASD in the context of inappropriate sexual behavior. Findings suggest there is a strong need to develop educational and training programs that better equip professionals with the skills to assist clients with FASD in treatment settings for inappropriate sexual behavior.

1. Introduction

Studies from both Europe and the USA have shown an fetal alcohol spectrum disorder (FASD) prevalence rate of children in the general population between 1% and 10% (Lange et al., 2017; May et al., 2018; Popova et al., 2017; Roozen et al., 2016). Notably, research suggests prevalence of FASD in the criminal justice and forensic settings may be much higher (McLachlan et al., 2019). For example, youth in Western Australia and Canadian correctional settings had an estimated FASD prevalence rate of 36% and 23% respectively (Bower, Watkins, Mutch, Marriott, Freeman, Kippin, and et al., 2018; Fast, Conry, & Loock, 1999; MacPherson, Chudley, & Grant, 2011). Due to the relative scarcity of training related to FASD specifically as well as the lack of access to FASD specialists for accurate diagnostic purposes, the figures cited above may be underestimates of the true prevalence rate.

Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term for several neurodevelopmental conditions that are precipitated by prenatal alcohol exposure. FASD is typified by cognitive (e.g., executive functioning, attention, impulsivity, and short- and long-term memory) and adaptive functioning (e.g., social skills, verbal and non-verbal communication, and decision making and linking cause and effect) impairments (Kully-Martens, Denys, Treit, Tamana, & Rasmussen, 2012; Pei, Rinaldi, Rasmussen, Massey, & Massey, 2008; Rasmussen, 2005; Rasmussen & Bisanz, 2009; Ware et al., 2012). Further, physical symptoms like facial dysmorphia occur in a minority of FASD cases, and those who do have the facial features tend to have less distinct features as they age (Chudley et al., 2005; Streissguth et al., 1991). The presentation of these symptoms varies greatly on a case-by-case basis. That

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is, one individual with FASD could present with symptoms that are dissimilar from another individual with FASD. Neurodevelopmental Disorder Associated with Prenatal Alcohol Exposure (ND-PAE) was identified as a disorder for future study in the *Diagnostic and Statistical Manual-5th Edition* (*DSM-5*; American Psychiatric Association, 2013). ND-PAE is the first disorder included in the DSM that provides mental health professionals with specific guidance in determining if a person may qualify for a diagnosis related to an FASD (Burd, 2016). Additionally, specific guidelines have been developed to assist in the diagnosis of FASD, although it should be noted that a diagnosis should be made by a multidisciplinary team with specialized training, experience, and expertise in FASD diagnosis (Cook, Green, Lilley, Anderson, Baldwin, Chudley, et al., 2016).

The diverse presentations of FASD and frequent lack of physical markers make it very difficult to accurately identify those with the disorder. As a result, individuals with FASD commonly go undiagnosed or are even misidentified (Knuiman, Rijk, Hoksbergen, & van Baar, 2015). In a very recent study, McLachlan et al. (2019) found that about 17.5% of Canadian justice-involved adults were identified as meeting criteria for FASD. About 86% of those adults in the study had not previously been identified as having FASD. Another nearly 14% of research participants could not be determined to either have FASD or be ruled-out, indicating the prevalence rate of FASD in justice-involved adults could possibly be as high as 31%, if sufficient information is available (e.g., confirmation of prenatal alcohol exposure). It should be noted that information about prenatal alcohol exposure was 'unknown' for about 50% of the research sample, also indicating that the prevalence of FASD in justice-involved populations may be much higher than current research indicates. These latest findings support the conclusion that those with FASD in the criminal justice setting typically are not detected and, therefore, do not receive the accommodations that would best support them.

This lack of identification has been referred to as "invisibility" by some authors (Chudley et al., 2005). The diagnostic difficulties are exacerbated by the fact that FASD usually presents with comorbid psychiatric disorders or other conditions. Comorbid diagnoses can contribute to "invisibility" by causing the focus of interventions to be on the co-morbid diagnosis and resulting in a lack of identification of the underlying FASD. Comorbid diagnoses may include everything from mood (e.g., major depression and bipolar) and anxiety to behavioral disorders (e.g., attention deficit/ hyperactivity disorder [ADHD] and conduct disorder), substance use disorders, and other neurodevelopmental disorders (e.g., autism; Popova et al., 2016). This includes everything from mood (e.g., major depression and bipolar) and anxiety to behavioral disorders (e.g., ADHD and conduct disorder), substance use disorders, and other neurodevelopmental disorders (e.g., autism, Popova et al., 2016). In at least one study, rates of comorbidity for individuals with FASD were believed to be as high as 90% (McLachlan et al., 2019). In a meta-analysis of 127 studies, the five most common comorbid disorders found from a total of 428 coded were: abnormal peripheral nervous system (90.9%), conduct disorder (90.7%), receptive language disorder (81.8%), chronic serous otitis media (77.3%), and expressive language disorder (76.2%; Popova, 2016). As such, referral to a specialized FASD diagnostic clinic will likely be necessary for comprehensive differential diagnosis to help ensure the accurate assessment of a client.

Individuals with FASD who are not accurately diagnosed are at an elevated risk for negative outcome from their involvement in the criminal justice system due to neurological impairments (e.g., impulsivity, poor judgment) that may increase their likelihood of maladaptive behaviors as well as a lack of targeted interventions (Fast & Conry, 2009). In fact, one study estimated that 60% of individuals with FASD had contact with the criminal justice system at some point in their lives (Streissguth, Barr, Kogan, & Bookstein, 1996), which was significantly higher than in the non-FASD general population (May et al., 2014). However, some research has demonstrated that if criminal justice professionals have knowledge of an FASD for an individual, it may lead to more appropriate consequences for unacceptable behavior (Cox, Clairmont, & Cox, 2008).Streissguth et al. (1996)defined having contact with the criminal justice system as clients ever being arrested for, charged with, or convicted of any of the following seven types of criminal behavior, listed in order of frequency most to least: person (theft, burglary, assault, and murder), property, possession/selling, sexual assault, status offense, vehicular, or other. Of those seven categories, shoplifting theft was the most common problem found. This risk of involvement is directly attributable to the symptoms of FASD, many of which are established risk factors for criminal behavior (Byrne, 2002; Popova, Lange, Bekmuradov, Mihic, & Rehm, 2011). For example, cognitive deficits such as executive function impairment can contribute to impulsivity, often resulting in rash and reckless behaviors without consideration of potential consequences (LaDue, Streissguth, & Randels, 1993; Rasmussen, Talwar, Loomes, & Andrew, 2008; Wyper and Pei, 2016). Alternatively, social deficits such as poor non-verbal communication skills could result in an individual with FASD being unable to identify the social cues that another person is uncomfortable (Brown, Gudjonsson, & Connor, 2011; Brown, Haun, Zapf, & Brown, 2017). Lastly, deficits in adaptive functioning could limit an individual's capacity to appropriately manage emotions and communicate effectively (Edwards & Greenspan, 2010). As illustrated here, the cognitive, social, and adaptive functioning deficits of FASD can increase the risk of criminal behavior in diverse ways (Clark, Lutke, Minnes, & Ouellette-Kuntz, 2004; Malbin, 2004; Mela & Luther, 2013; Schonfeld, Mattson, & Riley, 2005).

FASD may also predispose individuals to other risk factors for criminal behavior. For example, Corrado and McCuish (2015) conducted an archival study on Canadian youths with FASD ($n = 58$) and without FASD ($n = 456$). This study found that, relative to youths without FASD, youths with FASD were more likely to experience a host of criminogenic risk factors including foster care placements, disinhibition, early use of substances, and co-occurring disorders. When these other criminogenic risk factors presented with FASD, the youth was more likely to begin offending at an earlier age and do so with greater frequency across time.

Similarly, emerging evidence suggests that youths with FASD may be at an elevated risk to recidivate once involved in the criminal justice system. A recent study byMcLachlan et al. (2018) compared criminal justice-involved Canadian youths with FASD and without FASD. Youths with FASD reoffended at a higher rate (72.3%) than youths without FASD (52.4%). Further, youths with FASD reoffended more quickly than youths without FASD for both general recidivism and violent recidivism. It should be noted that this research is preliminary and has not been replicated. Together, these studies emphasize that individuals with FASD may be more vulnerable to serious and persistent criminal justice involvement than those without the disorder. However, changes in how the criminal-justice system works with those with FASD may result in a decrease in recidivism. Specifically, providing those with FASD supports and services that target adaptive and executive functioning domains along with approaches that are developmentally sensitive and trauma-informed may be protective (Brown et al., 2018). It is important to remember that such supports and services likely need to be implemented for an extended period of time with consistency, structure, and moment-by-moment reinforcement.

In addition to the many ways outlined above that FASD contributes to the risk of criminal justice system involvement (Brown, Connor, & Adler, 2012), these symptoms also increase the risk of crimes of a sexual nature (Streissguth, Bookstein, Barr, Sampson, O'Malley & Kogan Young, 2004).Streissguth, et al. (1996)identified sexually inappropriate behavior as a common secondary disability (i.e., a problem that results from the FASD associated deficits, for example educational failure or criminal justice involvement), with 49% of their adolescent and adult sample having demonstrated inappropriate sexual behavior. The researchers defined inappropriate sexual behavior as individuals who had ever been sentenced to a sexual offending treatment program or who had a

pervasive pattern of multiple encounters with at least one of the following 10 inappropriate sexual behaviors: sex with animals, obscene phone calls, incest, masturbation in public, voyeurism, compulsions, exposure, promiscuity, sexual touching, and sexual advances. At a basic level, the symptoms of FASD may make it challenging to distinguish between appropriate and inappropriate sexual behaviors due to functional deficits. For example, impulsivity and communication skill deficits, such as the failure to recognize non-verbal cues, may increase the risk of inappropriate sexual behavior (Brown & Singh, 2016; Brown, Wartnik, Connor, & Adler, 2010; Kodituwakku, Kalberg, & May, 2001; McMurtrie, 2011). Although there has been very little empirical research on the role of FASD in inappropriate sexual behavior, the link between FASD and inappropriate sexual behaviors continues to be a topic of discussion in the scientific literature (Brown, Wartnik, Connor, & Adler, 2010; McMurtrie, 2011; Streissguth et al., 1996).Streissguth et al. (1996) found that female clients with FASD demonstrating inappropriate sexual behavior were far more likely to have a history of sexual victimization. Additionally, the researchers reported while females tended to receive therapy to help deal with the inappropriate sexual behaviors, male clients most often ended up entangled in the legal system.

Once convicted of a sexual offense, individuals with FASD often struggle in the context of the criminal justice system. Of foremost concern, individuals with FASD will likely have trouble adjusting to the conditions of jails and prisons and complying with the conditions of community supervision like parole and probation (Brown, Eckberg, Hesse, Freeman, & Martindale, 2016; Brown et al., 2015; McLachlan, Gray, Roesch, Douglas, and Viljoen, 2018; Fast & Conry, 2009). Beyond this, individuals with FASD generally do not improve as a result of standard cognitive behavioral programming for addressing sexually inappropriate behaviors (Novick-Brown, 2007). These issues emphasize the importance of professionals to develop a stronger understanding of each client's individual needs and challenges. This is imperative in ensuring each individual receives appropriate and effective treatment and services that reduce their risk of future inappropriate sexual behaviors.

Professionals working in the field of sexual offender treatment have the potential to exert a strong influence over the future of their clients. In light of this, research exploring this group's current knowledge with regard to FASD is of the utmost importance. To date, very little research has been completed to consider this topic. One study looking at the perceptions and experiences of sex offender civil commitment professionals provided what little information is available about sex offender treatment providers' knowledge of FASD (Brown & Singh, 2016). In this study, only about 33% of civil commitment professionals reported having received training with regard to FASD and psycholegal impairments. Participants weren't asked about more general FASD training. Civil commitment professionals generally under-estimated the number of individuals with FASD who become involved in the criminal justice system. Additionally, they over-estimated the number of individuals who have FASD with facial abnormalities, indicating a likelihood of under-identification of those with FASD involved in such criminal justice systems. The majority of research participants reported that they would benefit from continuing education on FASD. To this end, the current survey of professionals that provide treatment services to sexual offenders explores their impressions of FASD and its presence in their clients. Findings have the potential to inform the development of educational and training programs that better equip professionals with the skills to assist clients with FASD and a history of inappropriate sexual behavior.

2. Method

2.1. Procedure

The Sex Offender Treatment Professional Perceptions of FASD in the Midwest survey was created and administered using the survey creation site SurveyMonkey.com. The survey was distributed electronically to members (n = 138) of the Minnesota Chapter of the Association for the Treatment of Sexual Abusers (MnATSA) listserv. After the initial email with the survey link, three separate reminder emails were sent over 1-week intervals to encourage participation. Informed consent was provided at the top of each survey. Completion of the survey implied consent was given. The study was reviewed and approved by the Institutional Review Board of a large Midwestern university. Responses were analyzed using Microsoft Excel.

2.2. Sample

Of 138 online survey requests sent, 24% (n = 33) responded with at least a partially completed submission. The respondents were predominantly women (65.6%; n = 21) and approximately 47 years old (M = 47.34, SD = 12.74). All respondents had completed at least an undergraduate degree, with 60.6% (n = 20) having a graduate (masters or equivalent) degree and 21.2% (n = 7) having a doctorate degree. In terms of professional experience, the respondents worked approximately 13 years in the field of sex offender treatment and supervision s (M = 12.91, SD = 9.40) and about 13 years with sex offenders (M = 12.70, SD = 9.24). Respondents practice their professions in the Midwest (see Table 1), with the majority of respondents working in Minnesota (78.1%; n = 25). Of the 11 respondents that identified their current position, four performed assessments, two served as clinical directors, and one responded with each of the following positions: administrator, supervisor, intake coordinator, mitigation specialist, and learning coordinator.

2.3. Measure

The survey consisted of 20 questions (see Appendix A) developed based upon information derived from research literature, including a review of similar surveys in other topics, and the professional experiences of the authors. Of those 20 questions, 1 was completely open-ended, 11 were closed-ended, and 8 were partially closed-ended questions with both responses and an "Other (please specify)" option. Questions covered demographic variables (e.g., gender, age, and education), professional experience (e.g., years working in the field), primary job responsibilities (e.g., role with clients), and knowledge of sexually inappropriate behavior as it relates to FASD.

3. Results

3.1. Setting and role with clients

Participants were asked about the setting that they work and the roles that they perform with clients (see Table 2). For settings, they were asked "What environment do you do the majority of your work with sex offenders?" The most common responses were "Outpatient/Community Setting" (54.55%) followed by "Correctional/Prison" (15.15%). For roles with clients, participants were asked, "What is your role with clients?" The most common responses were "Therapist/Counselor" (54.84%) followed by "Other (please specify)" (29.03%). Other less common responses for both of these questions are shown in Table 2.

Table 1
Location of practice by state.

State	Count	%
Minnesota	25	78.13%
South Dakota	3	9.38%
North Dakota	2	6.25%
Iowa	1	3.13%
Nebraska	1	3.13%

Table 2
Setting and role with clients of respondents.

	Count	%
Setting		
Outpatient/community setting	18	54.55%
Correctional/Prison	5	15.15%
Private practice	2	6.06%
Civil commitment	3	9.09%
Inpatient	2	6.06%
Probation	2	6.06%
Group home	1	3.03%
Day treatment	0	0.00%
Role		
Therapist/counselor	17	54.84%
Other (please specify)	9	29.03%
Clinical supervisor	3	9.68%
Probation/parole officer	2	6.45%
Case manager	1	3.23%
Intern/student/trainee	0	0.00%

3.2. Consequences

Participants were asked, "Check the top five consequences frequently associated with FASD." A total of 32 participants responded a total of 167 times across 12 of 14 possible consequences (see Table 3). Because there was no lockout at a maximum of 5 selections, 7 extra responses over the potential maximum of 160 responses resulted from participants checking more than 5 consequences. Due to the nature of allowing multiple selections for this question, the percentage was computed by dividing the count by the total number of participants. The most common consequences selected were Impulse Control Problems (93.75%; $n = 30$), Executive Function Deficits (75.00%; $n = 24$), Learning Disabilities (75.00%; $n = 24$), Adaptive Functioning Deficits (66.63%; $n = 21$), Social Skill Deficits (53.13%; $n = 17$), and Poor Judgment (50.00%; $n = 16$). Other less common responses can be seen in Table 3.

3.3. Symptoms and deficits

Participants were also asked, "What symptoms and deficits associated with FASD most likely contribute to inappropriate sexual behaviors among this population?" A total of 32 participants responded a total of 199 times across 12 of 13 possible answers (see Table 4). Due to the nature of allowing multiple selections for this question, the percentage was computed by dividing the count by the total number of participants. The most common symptoms or deficits were Impulsivity (93.75%; $n = 30$), Developmental Immaturity (81.25%; $n = 26$), Social Skill Deficits (81.25%; $n = 26$), Executive Function Deficits (68.75%; $n = 22$), Inability to Link Cause and Effect (68.75%; $n = 22$), Lack of Understanding Personal Boundaries (62.50%; $n = 20$), Poor Coping Skills (59.38%; $n = 19$), and Adaptive Functioning Deficits (46.88%; $n = 15$). Other less common responses can be seen in Table 4.

Table 3
Consequences frequently associated with FASD.

Consequences	Count	%
Impulse control problems	30	93.75%
Executive function deficits	24	75.00%
Learning disabilities	24	75.00%
Adaptive functioning deficits	21	65.63%
Social skill deficits	17	53.13%
Poor judgment	16	50.00%
Concentration deficits	10	31.25%
Memory problems	7	21.88%
Sensory integration deficits	7	21.88%
Language deficits	5	15.63%
Substance misuse	5	15.63%
Sleep problems	1	3.13%
Back pain	0	0.00%
Dry mouth	0	0.00%

Table 4
Contribution of FASD symptoms and deficits to sexual offending.

Symptoms and deficits	Count	%
Impulsivity	30	93.75%
Developmental immaturity	26	81.25%
Social skill deficits	26	81.25%
Executive function deficits	22	68.75%
Inability to link cause and effect	22	68.75%
Lack of understanding personal boundaries	20	62.50%
Poor coping skills	19	59.38%
Adaptive functioning deficits	15	46.88%
Substance misuse	11	34.38%
Inappropriate role modeling	4	12.50%
Perseveration	3	9.38%
Sleep problems	1	3.13%
Headaches	0	0.00%

3.4. Facial feature abnormalities

Participants were also asked about their familiarity with facial features in FASD. Specifically, they were asked, "Based on your knowledge, what percentage of individuals diagnosed with Fetal Alcohol Spectrum Disorder have facial abnormalities such as wide-set eyes, thin upper lip, smooth philtrum, upturned nose, epicanthal folds, and small head size?" A total of 31 participants responded to the question. The most common answer was 0%–25% (51.61%; $n = 16$), followed by 26%–50% (22.58%; $n = 7$), 51%–75% (19.35%; $n = 6$), and 76%–100% (6.45%; $n = 2$).

3.5. Criminal justice system participation

Another question asked participants about how often individuals with FASD become involved in the criminal justice system: "What percentage of individuals diagnosed with Fetal Alcohol Spectrum Disorder become involved in the criminal justice system?" The most common answer was 26%–50% (41%; $n = 13$), followed by 0%–25% (31%; $n = 10$), 51%–75% (25%; $n = 8$), and 76%–100% (6%; $n = 1$).

3.6. Training

A series of questions explored if respondents had received any training on FASD. First, participants were asked if they had received any training in regards to FASD and sexual inappropriate behavior. A total of 32 participants responded. The most common response was "No" (84%; $n = 27$) followed by "Yes" (16%; $n = 5$).

Second, participants were asked, "Would you likely benefit from a continuing education course that addresses the interaction between Fetal Alcohol Spectrum Disorder and sexually inappropriate behaviors?" A total of 31 participants responded. The most common response was "Yes" (90.32%; $n = 28$) followed by "I Do Not Know" (10%; $n = 3$). No participant selected "No" as their response.

Third, participants were asked if they had ever received any training on the recognition of FASD and, if so, how helpful was the training. A total of 27 participants responded. The most common response was that the vast majority "Never Received" training (55.56%; $n = 15$). Of those that did receive training, 22.22% ($n = 6$) found it "Somewhat Helpful," 11.11% ($n = 3$) "Helpful," 7.41% ($n = 2$) "Very Helpful," 3.70% ($n = 1$) "Extremely Helpful," and no one selected "Not Helpful At All."

Fourth, participants were asked if they believed that having an FASD screening tool would help them screen more often for FASD. The most common response was "Yes" (78.13%; $n = 25$). 15.63% ($n = 5$) responded "I do not know" and 6.25% replied "No" ($n = 2$).

Table 5
Disorders that commonly co-occur with FASD.

Symptoms and deficits	Count	%
Attention Deficit/Hyperactivity Disorder (ADHD)	20	64.52%
Learning Disorder	14	45.16%
Conduct Disorder (CD)	10	32.26%
Oppositional Defiant Disorder (ODD)	7	22.58%
Reactive Attachment Disorder (RAD)	7	22.58%
Anti-social personality disorder	4	12.90%
Autism Spectrum Disorders (ASD)	4	12.90%
Post-traumatic stress disorder (PTSD)	3	9.68%
Borderline personality disorder	2	6.45%
Borderline intellectual functioning	1	3.23%
Digestive disorder	1	3.23%
Other personality disorder	1	3.23%
Unknown	1	3.23%
Bipolar disorder	0	0.00%
Breathing disorder	0	0.00%
Sleep disorders	0	0.00%
Traumatic brain injury (TBI)	0	0.00%

3.7. Psychiatric comorbidity

To explore the perceptions of co-occurring disorders, participants were asked, "What is the most common co-occurrence of mental health disorder amongst your clients with FASD?" A total of 30 participants responded with 73 actual responses. Table 5 presents the count and percentage of responses. The most common responses were Attention Deficit/Hyperactivity Disorder (64.52%; $n = 20$), Learning Disorder (45.16%; $n = 14$), Conduct Disorder (32.26%; $n = 10$), Oppositional Defiant Disorder (22.58%; $n = 7$), and Reactive Attachment Disorder (22.58%; $n = 7$). Other less common responses are presented in Table 5.

3.8. Referral rate

Participants were also asked, "In a typical month how many clients do you suspect you see with FASD?" Choices ranged in blocks from 1 to more than 21 with Other serving to capture those professionals referring at least 1 client per year but less than 1 client per month. A total of 32 participants responded. The most common response was "1–2" per month (53.13%; $n = 17$). This was followed by "Other" (18.75%; $n = 6$), which means more than 1 per year but less than 12, "None" (15.63%; $n = 5$), "3–4" (6.25%; $n = 2$), and "5–10" (6.25%; $n = 2$). No participants selected "11–20" or "21 + ".

3.9. Clientele age

To better understand the clients served by respondents, participants were asked about the typical age range of their clients. The resulting age range of the clients was heavily skewed towards adults. The most common responses were "Adults (18 +)" (71.88%; $n = 23$), "Combination of Adolescent and Adults" (12.50%; $n = 4$), "All Age Groups" (9.38%; $n = 3$), "Adolescent" (3.13%; $n = 1$), and "Combination of Child and Adolescent" (3.13%; $n = 1$). No one responded for "Child: (0 − 12)" or "Other (please specify)."

3.10. Treatment strategies and techniques

To gain an impression of the treatment strategies and techniques that are commonly used by professionals in this field, respondents were asked, "What intervention(s) and strategies have you found most helpful when treating this population within the context of sex offender treatment?" Table 6 presents the responses to this question. The most common response was role play (29.17%). Other responses include art and music therapy, use of repetition, and use of concrete language and material.

Table 6
Treatment strategies and techniques commonly employed.

Treatment strategy/technique	Count	%
Art & music therapy	4	16.67%
Use concrete language and material	3	12.50%
Use repetition	4	16.67%
Role play	7	29.17%
Other	3	12.50%
Unknown	3	12.50%

4. Discussion

This study explored the knowledge of FASD among sexual offender treatment professionals. Although the response rate for this survey was modest (24%), the participants were highly educated (i.e., 80% had at least a Master's degree) very experienced with an average of 13 years working in the field. The key findings from this study include that the respondents readily recognized symptoms, deficits, and consequences of FASD.

4.1. FASD diagnostic knowledge

Findings from this study indicated that despite the incredibly high rate of contact for those with FASD with the criminal justice system, respondents were unaware of this. In fact, almost 75% of respondents believed that the rate of criminal justice contact was less than or equal to 50%. Further, over 80% of respondents had never had specific training about FASD or its association with inappropriate sexual behaviors. Beyond prevalence, respondents were also questioned about their knowledge of FASD. For instance, respondents were asked about what percentage of individuals with FASD present with physical facial abnormalities. Just over half of the respondents (53%) selected 0–25%. This is in line with current research, which has found that the vast of majority, in some cases exceeding 75%, of individuals experiencing prenatal alcohol exposure present with no physical facial abnormalities. Nonetheless, almost half of the sample reported that 26% or more of those with FASD would present with facial abnormalities. This is consistent with previous research in civil commitment professionals (Brown & Singh, 2016). As such, it is very conceivable that some of these professionals may not be identifying FASD when facial abnormalities are not noticeable. Further complicating the challenges associated with identifying FASD is the fact that the overwhelming majority of those with the disorder also present with one or more other co-occurring disorders (Brown, Trnka, Harr, Dodson, Wartnik, & Donaldson, 2018). In light of these concerns, deeper investigations into the identification of FASD is merited.

On a more positive note, respondents were generally able to recognize a large number of symptoms and deficits associated with FASD. This was reflected in the average of 6 symptoms selected by each respondent. Some of these symptoms could also be indicative of the other disorders commonly found in previous research. Over half of the respondents selected the following 7 symptoms and deficits: impulsivity, developmental immaturity, social skill deficits, inability to link cause and effect, lack of understanding personal boundaries, and poor coping skills. All of these symptoms are common in individuals with FASD. In regards to conduct disorder specifically, while being third most prevalent in the current study, it was the 2nd most prevalent condition in a large meta-analysis of 127 studies conducted by Popova et al. (2016).

Similarly, respondents also recognized a large number of consequences associated with FASD. This was reflected in the average of 5 consequences selected by each participant. Some of these consequences are also found to be associated with other disorders or conditions. Over half of the participants selected the following 5 consequences of FASD: impulse control issues, executive functioning deficits, learning disabilities, adaptive functioning deficits, and social skill deficits. These

findings indicate that respondents are able to recognize both the symptoms and consequences of FASD. It is hoped that with the increasing exposure of FASD in the research community and the inclusion in the DSM-5 of the proposed diagnostic ND-PAE criteria, recognition of FASD among criminal justice and forensic mental health professionals will also increase. This will likely result in better treatment and potentially improved outcomes to what until now has been previously lacking.

4.2. Professional experience and training with FASD

There is a real possibility that FASD is being under-identified in inappropriate sexual behavior treatment settings. For example, some of the respondents reported encountering or treating less than 12 FASD patients a year. Although more research is needed, this speaks to a lack of FASD recognition even among professionals with years of experience. It is noteworthy that over 75% of respondents viewed the option of an FASD screening tool favorably. In a recent study, McLachlan et al. (2019) reported 86% of participants identified as having FASD had never been found to have FASD prior to the study. Similar misdiagnosis or under-diagnosed counts have been documented in other studies. This suggests that the overwhelming majority of individuals who have been exposed to alcohol prenatally have never received an accurate FASD diagnosis prior to entering the criminal justice system. Similarly, respondents in the current study strongly believed, in excess of 90%, that they would benefit from continuing education (CE) courses that address the intersection of FASD and sexually inappropriate behaviors. This indicates a real desire in this field to address a training gap in the area of FASD and sexually inappropriate behaviors. This finding is consistent with a similar survey of civil commitment professionals by Brown and Singh (2016) in which 75% of participants felt they would benefit from continuing education courses related to FASD and psycholegal impairments. This is also consistent with similar surveys of professionals in criminal justice systems with regard to FASD more generally. Several studies have indicated professionals frequently rate the desire for additional training and information very highly (e.g., Cox, Clairmont, & Cox, 2008; Johnson, Robinson, Corey, Dewane, Brems, & Casto, 2010; Mutch, Jones, Bower, & Watkins, 2016; Passmore, Mutch, Burns, Watkins, Carapetis, & Hall, 2018).

Co-morbid disorders among those with FASD are quite common. Some research even suggests that comorbidity rates could exceed 90% (Famy, Streissguth, & Unis, 1998; Streissguth et al., 1996). To explore the familiarity of respondents with this topic, respondents were asked to identify the most common co-occurring mental health disorders in their FASD patients. Out of a total of 17 choices, on average each participant selected approximately 2 co-occurring disorders or conditions. Only ADHD was selected by more than 50% of the participants. Emphasizing the wide variety of co-morbid disorders presenting with FASD, 13 out of the 17 possible choices were selected at least once by a respondent. Interestingly, traumatic brain injury (TBI) was not selected despite the numerous anecdotes, personal testimonials, and professional observations that suggest the co-occurrence of FASD and TBI is commonplace. This finding may be anomalous among individuals with FASD because the prevalence rate of TBI is greatly increased over society in general. As a result of the impairments and deficiencies of FASD, individuals may have an elevated likelihood to experience injury, accident, or self-harm (Baldwin, 2007; Fast & Conry, 2009). Similarly, the rates of borderline intellectual functioning and sleep disorders are highly prevalent in those with FASD (Ipsiroglu, McKellin, Carey, & Loock, 2013; Mattson, Crocker, & Nguyen, 2011; Streissguth et al., 1996). However, the results of the current study do not reflect an understanding of this prevalence rate. Such disparities between the current study and prior research warrant future exploration.

As noted above, these results are similar to the findings of a similar study among civil commitment professionals (Brown & Singh, 2016) and it is similar to the findings about professionals' knowledge about FASD more broadly in criminal justice systems (Cox et al., 2008; Johnson et al., 2010; Mutch et al., 2016; Passmore et al., 2018). Although the sample sizes in both sex offender specific studies are small, both types of professionals varied widely in their ability to correctly identify signs, symptoms, and consequences of FASD. Both groups also demonstrated a desire for increased training on FASD and inappropriate sexual behavior as well as the availability of a screening tool for use in daily practice. Finally, the vast majority of respondents in all of the above listed studies strongly favored the development and availability of continuing education classes about these issues.

4.3. Limitations

This study has a number of limitations that should be considered when interpreting the findings. First, the response rate of the survey was modest. Less than 25% of all potential participants submitted the survey. Second, the current study was also unbalanced in terms of participation by genders. Females accounted for approximately two-thirds of the respondents. Third, the study was not conducted nationwide and is not representative of the nation as a whole. Respondents in this study were limited to 5 Midwest states. Fourth, ethnicity is an important variable to consider. As was done in the present study by asking about geography, investigating the ethnicity of participants and analyzing the results based on that variable may yield new insights. Fifth, the study did not force participants to answer every question. This resulted in varying responding rates across the questions. While adequate for this pilot study, ideally, and in future, participants will be required to answer all questions or their responses will be removed from the sample. Future studies that sample from a much broader cross section of the country should take this into account. Additionally, a wider range of sex offender treatment professional education levels may provide more insights and be more representative than the current study which was heavily weighted towards Masters and Doctorate level professionals. Ideally, a more even distribution or stratified sampling may eliminate this disparity. The survey was constructed with various symptoms and consequences of FASD that may allow an individual without knowledge of FASD specifically to make logical guesses. That design choice necessitates relying on the honesty of all participants to answer truthfully and accurately as to their personal knowledge and understanding FASD. Future survey studies may benefit from asking open-ended questions without providing a possible list of symptoms/consequences as this format may provide additional information about base-knowledge of participants. As a result of these limitations, the findings are meaningful but may lack generalizability in absence of additional studies of more breadth and depth.

4.4. Implications

There are three main implications of the current study. First, participants in the current study, as members of MnATSA, were well educated and well established in their careers. However, even these professionals did not often recognize that over 60% of individuals with FASD would come into contact with the criminal justice system at some point in their lives. Second, training continues to be lacking in the area of FASD, in general, as well as in the context of inappropriate sexual behavior. This is problematic because FASD is so commonly found with a high number of other difficult, and similarly presenting, pernicious mental and neurobehavioral disorders. Effective identification and intervention for those with FASD is important for appropriate support. Finally, on a positive note, participants did an excellent job of identifying the major consequences, symptoms, and deficits of FASD, as has been consistent in similar surveys (Cox et al., 2008; Johnson et al., 2010; Mutch et al., 2016; Passmore et al., 2018).

4.5. Recommendations

Sex offender treatment providers face many challenges in providing their services to a very diverse and heterogenous group of individuals. Further education and training are a standard practice for treatment providers, and education about FASD would be invaluable given the likelihood of practitioners having at least some clients with this disorder. Therefore, our first recommendation would be for all practitioners who work in sex offender treatment to seek training to assist in the identification of possible FASD in clients and to become familiar with local resources for multi-disciplinary teams who provide thorough assessments for a full diagnosis. Research with regard to interventions focused on those with FASD has typically been conducted with children and essentially no intervention research with regard to those with FASD and inappropriate sexual behaviors has been conducted. Therefore, the following recommendations are based on the research of known FASD deficits, sex offender interventions for those with intellectual disabilities, and general interventions proposed for those with FASD with or without sexually inappropriate behaviors. The following recommendations are provided as a beginning structure for sex offender treatment providers:

1. Formal training on FASD
2. Structuring their days and activities
3. Social skills development
4. Development of a prosocial support system
5. Simple, concrete instruction in a variety of formats
6. Consideration for medication assessment referral

Once a client has been identified as having FASD, there are several interventions that may be helpful. Again, we emphasize formal training to thoroughly understand the possible interventions for this disorder but offer a few basic interventions that may be helpful to begin. As would be expected for all clients, a thorough understanding of the individual's functioning, both strengths and weaknesses, is necessary to plan individualized treatment. Once the individual's functioning is understood, more individualized treatment planning may occur. However, the following suggestions may be applicable to many clients with FASD and sexual behavior problems.

Individuals with FASD struggle to understand consequences of their actions, time management, poor personal boundaries, and the ability to provide their own structure to their lives (Baumbach, 2002; Kodituwakku, 2009; Kodituwakku et al., 2001; Streissguth et al., 1996). For this reason, one of the primary interventions that may lay the foundation for successful treatment participation and recidivism reduction is assisting the person with FASD in developing a structured life so that they adhere to a consistent and predictable routine (Blasingame, 2016). This may assist in managing executive functioning deficits as well as adaptive functioning deficits. One example of the benefit from a structured lifestyle includes assistance in avoidance of situations and places which may provide further exposure to vulnerable populations that may be at risk of sexually inappropriate behavior. If a person has a known and predictable structure for their day (e.g., school, work, volunteer activities, structured social engagement, recreational activities), they will be left with less unsupervised/unstructured time to fill and less possibility for unknown influences. Assisting the client with FASD to develop a structured plan for their day will assist them in understanding where they are to be and what activities they are to be engaged in. Such a structure should be developed in a positive manner – what to do with their time rather than simply listing places/activities to avoid.

Another area that is consistently identified in those with FASD is a significant deficit in social skills (Kully-Martens et al., 2012; Streissguth et al., 1991). This may be observed in communication difficulties such as a lack of reciprocity in conversations to a lack of understanding of appropriate sexual behaviors. Various interventions may be effective in those with FASD, however, few research studies have been completed and well-developed research in this area is needed (Kully-Martens et al., 2012). Interventions that may be beneficial may include developing and practicing social narratives, role plays, and controlled behavioral rehearsal. It is important to note that while sex offender treatment is typically conducted in group settings, some of these skill development techniques and other interventions for those with FASD may require individual sessions in conjunction with group sessions.

In addition to basic social skills development, those with FASD and social deficits may have significant difficulty identifying appropriate social connections or influences. Because they often have an underdeveloped ability to understand social interactions and seek social connection and acceptance, those with FASD are often easily manipulated by others (Pei, Leung, Jampolsky, & Alsbury, 2016). It may be important for treatment providers to assist those with FASD in understanding who are appropriate social connections both in behavioral aspects (e.g., prosocial peers) and age and developmental status (i.e., although they may be developmentally more like a much younger person, it is not appropriate for them to socialize or be sexual with someone chronologically much younger). Those with FASD, and particularly if they have been in trouble for inappropriate sexual behaviors, may need assistance in developing prosocial and appropriate peer relationships and other social connections.

As each of these interventions are being implemented, clinicians are reminded that simple, concrete instruction presented in a variety of media formats will likely be most effective with the FASD population. Presenting information in small quantities and in simple language is most accommodating to receptive language deficits commonly seen in those with FASD. Additionally, executive functioning deficits such as information processing difficulties would be best accommodated by providing information repeatedly and in a variety of formats (e.g., auditory, written, visual and in role-play formats). Repetition is key for memory as well as for information processing.

Finally, it has been well-established that those with FASD often experience comorbid disorders that may contribute to sexual behavior problems and difficulty benefiting from therapeutic interventions (Clark et al., 2004; Streissguth et al., 1996; Streissguth, Barr, Kogan, & Bookstein, 1997). Clinicians should be aware of this high comorbidity and be prepared to make referrals for pharmacotherapy assessments. In particular, disorders such as ADHD are extraordinarily common in those with FASD and may contribute to impulsivity, poor planning, and inattention to their environment, which may contribute to difficulties engaging in appropriate sexual behavior without intervention. Clinicians should screen for comorbid disorders (e.g., ADHD, depression, anxiety) and make referrals for further assessment, if needed.

5. Future directions and conclusions

There are clear gaps in the understanding of FASD in the context of inappropriate sexual behavior. Future research, using the current study as a model, should be conducted to include ethnicity and a much broader sample of the United States and beyond. Not only would this increase the generalizability of findings, but also the statistical power to detect effects. Another important factor, which was not investigated in the current study, may be the significance of gender among individuals with FASD who behave sexually inappropriately. Similarly, investigations of differences of age among FASD youth and adults who behave sexually inappropriately may yield important insights.

Another important topic to explore is the previously discussed Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE) proposed diagnostic criteria found in the DSM-5 under the section titled conditions for further study (American Psychiatric Association, 2013). With the recent inclusion of ND-PAE criteria as a recommendation for future research in the DSM-5, FASD and its various interactions with criminal behavior are areas of research ripe for enhanced study and analysis. Surveys should explore the extent that ND-

PAE criteria are being used in the field. Important caveats include if practitioners recognize the criteria, and when they do, how it informs them during treatment.

There are clear gaps in the understanding of FASD in the context of inappropriate sexual behavior. Participants in the current study, as members of MnATSA, were well educated and well established in their careers. However, even these professionals did not often recognize that over 60% of individuals with FASD would come into contact with the criminal justice system at some point in their lives. Future research, using the current study as a model, should be conducted to include ethnicity and a much broader sample of the United States and beyond. Not only would this increase the generalizability of findings, but also the statistical power to detect effects. Another important factor, which was not investigated in the current study, may be the significance of gender among individuals with FASD who behave sexually inappropriately. Similarly, investigations of differences of age among FASD youth and adults who behave sexually inappropriately may yield important insights.

Appendix A. Survey questions

1. Please check the top five consequences frequently associated with Fetal Alcohol Spectrum Disorder?
2. What symptoms and deficits associated with FASD most likely contribute to inappropriate sexual behaviors among this population? Check all boxes that apply:
3. Based on your knowledge, what percentage of individuals diagnosed with Fetal Alcohol Spectrum Disorder have facial abnormalities such as wideset eyes, thin upper lip, smooth philtrum, upturned nose, epicanthal folds, and small head size? Check only one answer.
4. What percentage of individuals diagnosed with Fetal Alcohol Spectrum Disorder become involved in the criminal justice system? Check only one
5. Have you ever received training related to the interaction between Fetal Alcohol Spectrum Disorder and sexually inappropriate behaviors? (If unsure, please select No)
6. If you have received training on the recognition of FASD, how useful was it in helping you determine if a client has FASD? Rank 1 through 5: (5 being extremely helpful)
7. Would you likely benefit from a continuing education course that addresses the interaction between Fetal Alcohol Spectrum Disorder and sexually inappropriate behaviors?
8. What intervention(s) and strategies have you found most helpful when treating this population within the context of sex offender treatment? Please list your responses.
9. What is the most common co-occurrence of Mental Health Disorder among your clients with FASD?
10. What is your highest completed degree level? (Please check all that apply)
11. How many years have you been working in the field of sex offender treatment or supervision?
12. Please check the environment you do the majority of your work with sex offenders.
13. In a typical month how many clients do you suspect you see with FASD? Referrals per month:
14. What age range of clients do you work with?
15. What is your role with your clients? (please check box that best applies)
16. Do you think having an FASD screening tool would help you screen more often for FASD?
17. How many years have you been working with sex offenders? Please check one.
18. Please indicate your gender
19. Please indicate your age. (Please select your best response)
20. What state do you do most of your work in?

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