

# Affirmative Psychological Testing and Neurocognitive Assessment with Transgender Adults



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## KEYWORDS

- Affirmative • Transgender • LGBT • Assessment • Neuropsychology
- Neurocognitive • Testing

## KEY POINTS

- A level of competence above and beyond psychological assessment with the general population is necessary for an accurate and ethical interpretation of test data of transgender clients.
- An understanding of the gender-affirmative model (GAM) and the gender minority stress model should guide clinicians' choice of psychological tests, scoring, and interpretation and case conceptualization of transgender clients.
- Clinicians must attempt to distinguish mental health symptoms from clients' unique experiences of gender dysphoria.
- A medical decisional capacity model is in line with an affirmative assessment approach.

The history of assessment and psychological testing with transgender clients is fraught with challenges and barriers to accessing medically necessary gender transition-related care.<sup>1</sup> For decades, transgender people have been made to undergo psychological testing as a standard part of their attempts to access this care.<sup>2</sup> Even today, however, no consensus exists on best practices for assessment and psychological testing with transgender clients in general or in transgender-specific practice. As of this writing, no assessment instruments in neuropsychological, intelligence, or

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personality testing batteries have been normed or validated on the transgender population. To further complicate matters, many tests have gender-based norms, leading to multiple questions, including which set of norms clinicians should use when assessing transgender clients—man or woman. Does it depend on if a client has started a medical transition? Does it even matter which gender is selected? Is it different depending on each instrument? Using the gender-affirmative model (GAM),<sup>3</sup> this article aims to answer these questions in the context of general clinical assessment and provide considerations for assessment and the use of psychological testing for evaluation for hormone therapy and surgery related to gender transition.

As the field of transgender health developed, decades of research have reported on data from psychological evaluations of transgender people. The findings from much of the early literature were based on results from the Minnesota Multiphasic Personality Inventory (MMPI) and other psychological tests.<sup>4–6</sup> The findings from this literature include high rates of psychopathology and mental health disparities in this population<sup>7,8</sup> and reports of transgender people and their partners having severe mental illness simply because they are transgender or for believing that their transgender partners are really the gender they say they are.<sup>9</sup> These interpretations were not informed by current theories, such as gender minority stress,<sup>10</sup> and fueled stigma and bias against transgender people in the mainstream. Furthermore, uninformed interpretations of many types of psychological tests have had devastating consequences to many transgender people, such as losing custody of their child and not being hired for a job.

Initial attempts to create standards of care by the World Professional Association for Transgender Health (WPATH) (then known as the Harry Benjamin International Gender Dysphoria Association), begun in the late 1970s, resulted in a gate-keeping model,<sup>11</sup> where transgender patients had to prove that they were transgender and pass the tests that clinicians instituted. Although there is a growing literature concerning assessment of gender dysphoria children,<sup>12–14</sup> there is no consensus among clinicians today regarding the role of psychological tests in evaluations for hormone and surgical treatment of gender transition in adults. It is becoming increasingly clear that both medical and surgical treatments are related to improved mental health outcomes in this marginalized group.<sup>15–17</sup> The practice of psychological testing using tests that are not normed on this population or for these purposes must be scrutinized.

## ESTABLISHING PROVIDER COMPETENCE

A level of competence above and beyond psychological assessment with the general population is necessary for an accurate and ethical interpretation of test data of transgender clients. Affirmative assessment with transgender clients stems from a clinician's understanding of transgender-affirming psychological practice.<sup>1</sup> Knowledge of the following is a prerequisite for transgender-affirmative assessment: the GAM,<sup>3</sup> the gender minority stress model,<sup>10</sup> the impact of hormone therapy on the mood and cognition of transgender people,<sup>5,17–21</sup> and considerations for scoring test data using gender-normed assessment instruments.

The GAM<sup>3</sup> informs assessment interpretation and case conceptualization with transgender clients. The major premises of this model inform the purposes of affirmative assessment. For example, the GAM posits that being transgender is not a disorder, gender diversity varies across cultures and requires cultural sensitivity, gender is not binary and may be fluid, and, if there is pathology, it is more likely formed in response to a hostile environment (transphobic and homophobic cultural reactions) than from within the person. The GAM defines gender health as the “opportunity to

live in a gender that feels most real or comfortable”<sup>3</sup> to the person and to be able to express one’s gender without being restricted or rejected. The American Psychological Association’s guidelines on working with transgender clients also recommend an affirmative approach.<sup>22</sup>

Affirmative assessment is further informed by the gender minority stress model.<sup>10</sup> This model, informed by Meyer,<sup>23</sup> presents distal and proximal stressors experienced by this population, which has a negative impact on mental health. Distal stress factors include physical and sexual violence, harassment, and discrimination, all of which occur at a much higher rate in this population than in the general population.<sup>7</sup> Proximal stress factors include expectations of violence and internalized transphobia. These may appear to be symptoms of depression or paranoia. Mental health sequelae stemming from distal and proximal stressors include high rates of substance abuse and suicidal ideation and attempts consistent with a population dealing with significant experiences of trauma and rejection. A history of suicide attempts in this population has been established to be 10 to 20 times more likely than in the general population.<sup>24</sup> Community connectedness and a sense of trans in one’s trans identity are resilience factors that are thought to buffer the effects of the stressors. The Gender Minority Stress and Resilience scale<sup>25</sup> assessment instrument has been developed to assess these specific factors and may assist in case conceptualization.

Another experience that is unique to the transgender population is that of gender dysphoria. According to the 7th version of the WPATH standards of care,<sup>26</sup> not all transgender people experience gender dysphoria; living in a society that is not welcoming or inviting of people whose gender identity is different from the sex assigned them at birth may lead to minority stressors, including traumatic experiences. Olson-Kennedy<sup>27</sup> asserts that transgender people may have multiple thoughts related to their gender, body, or physical safety on a daily basis. He refers to this experience as gender noise. For example, after shaving her face on a daily basis, resulting in skin abrasions and dryness, a trans woman may have recurring thoughts: “I wonder if people will know I’m trans. Will makeup even help me at this point? Is this whole process even worth it? Should I shave my face again? If I go on a date, will I ever come home again?” A trans boy in high school may spend so much energy dealing with gender noise that his academic performance may be significantly impacted. His gender noise may include thoughts, such as, “I wonder if I’ll ever be able to start testosterone. Is my binder too tight? Can other people see my chest or is it flat enough? Why does my voice always give me away? Will anyone ever use my pronouns? Is my jawline masculine? Will I be able to hold my bladder so I don’t have to try to use the bathroom at school?” It is possible that this unique thought process may not be apparent to the assessor who may be picking up on gender dysphoria yet conceptualizing it as inattention, lack of interpersonal interest, social anxiety, depression, and other psychological issues.

## **DISTINGUISHING MENTAL HEALTH SYMPTOMS FROM GENDER DYSPHORIA**

Because mental health disparities disproportionately have an impact on transgender persons,<sup>8</sup> affirmative assessors must attempt to parse out mental health symptoms from gender dysphoria.<sup>22</sup> If test results indicate a mental health condition, clinicians must consider possible explanations for this occurrence as it relates to a client’s transgender history. The American Psychological Association guidelines<sup>22</sup> suggest several explanations, each of which is illustrated by cases developed for the purposes of this article.

Case 1: no relationship between the transgender history and the mental health condition. Example: a transgender man who has been on testosterone for 10 years has

bipolar disorder that runs in his family. He is also trans but no longer experiences dysphoria related to his gender. He continues testosterone treatment to prevent symptoms of gender dysphoria and receives psychiatric and counseling services for his bipolar disorder.

Case 2: a gender concern leads to or exacerbates mental health symptoms directly through gender dysphoria and/or indirectly through gender minority stress, which may present as depression, anxiety, or paranoia. The gender concern itself does not cause the mental health condition. Examples: a nonbinary trans person has been chronically misgendered, has been rejected by several family members, and was fired from a job for not conforming to gender norms in the workplace; the experience of these gender minority stressors leads the client to develop symptoms consistent with social anxiety disorder. A transgender woman experiences severe gender dysphoria in the realm of genital dysphoria and is having difficulty concentrating in her college classes. A transgender boy develops an eating disorder as he is about to begin his endogenous puberty in efforts to delay menstruation. These last 2 examples demonstrate how the experience of gender dysphoria leads to mental health symptoms.

Case 3: the gender concern and mental health symptoms are independent, yet they influence each other, sometimes simultaneously. Neither actually causes the other. Examples: a transgender adult with a history of emotional dysregulation is about to begin hormone therapy and presents for therapy with a concern that the experience of a second puberty will have a negative impact on mood; a transgender man with an autism spectrum disorder speaks about his experience of gender in an uncommon manner and does not care if others see him as the man he knows himself to be.

Case 4: a mental health concern seems to be a gender concern, yet the real problem is not a true gender concern.<sup>28</sup> Example: a client states that they are a man living in woman's body and presents with psychotic symptoms. After the psychosis is treated, however, the client no longer expresses a gender concern. In these cases, the gender concern is a delusion, which occurs in the context of psychosis or mania and does not represent a true gender concern. This is an extremely rare presentation and should be assessed carefully.

In circumstances of gender dysphoria or transgender identity present (cases 1 and 3), treatment, including hormone therapy and/or surgical treatment, may be indicated.<sup>26</sup> Multiple professional organizations have published about the medical necessity and alleviating nature of these treatments in the transgender population.<sup>29</sup> In cases of gender dysphoria causing or exacerbating mental health symptoms (case 2), medical treatment of gender dysphoria is thought to be helpful in alleviating those symptoms as well.

## EFFECTS OF HORMONE THERAPY ON MOOD AND COGNITION

Because mood and cognition are factors considered in presurgical assessments, it is important to discuss the effects that hormone therapy has on these factors. There has been empirical evidence to suggest that there are differences between genders with respect to cognition in the cisgender (nontransgender) population. Namely, the data have supported similar overall IQ between genders while noting a divide between spatial and verbal intelligence. More specifically, women tend to have higher verbal intelligence, whereas men tend to have higher spatial intelligence.<sup>30</sup> The differences in spatial ability have been more robustly and consistently demonstrated.<sup>31,32</sup>

Given that hormonal findings have been posited, it stands to reason that cross-sex hormone administration is likely to have a bearing on cognition. Hormone therapy has been found to have an impact on mood and cognition in transgender adults, although

research on cognition has yielded mixed results.<sup>21</sup> Several studies on hormone therapy have found associations with improved mental health, including increased quality of life,<sup>33</sup> decreased anxiety and depression,<sup>16,18,34,35</sup> decreased stress,<sup>36,37</sup> and decreased paranoia.<sup>17</sup> Among research that specifically examines the cognitive changes brought about by hormone therapy, a majority of studies have focused on spatial rotation and verbal fluency.<sup>5,21</sup> Increases in spatial ability have been the most robust findings related to testosterone therapy,<sup>38</sup> although some studies have not found significant improvement in spatial ability related to testosterone.<sup>21</sup> In 1 uncontrolled study,<sup>20</sup> trans men were shown to have increased scores on a measure of spatial rotation and decreases in verbal ability after 3 months on testosterone treatment. A later study, which used cisgender men or women as controls,<sup>38</sup> found similar results. A long-term follow-up study that used transgender women as controls was able to replicate spatial increases; however, findings indicated that verbal ability did not diminish in transgender men after over 1 year on testosterone.<sup>39</sup> A more recent study, however, was not able to replicate spatial gains in transgender men after 2.5 months on testosterone.<sup>21</sup> The latest longitudinal research on cognition in transgender men used a cross-sectional design to show improved performance on visual memory tasks relative to transgender men who were not on testosterone.<sup>19</sup> From this information, it seems likely that testosterone is related to increases in spatial skills; however, due to variable findings, testosterone's effect on verbal ability is less clear.

Furthermore, there have been structural differences noted even in pretransition populations, which may serve to confirm cognitive changes noted, although these findings have been mixed. Using diffusion tensor imaging, a type of imaging using water molecule tissue diffusion, which is effective at looking at axonal structures, Rametti and colleagues<sup>40</sup> noted that transgender men were significantly more similar to cisgender men than to cisgender women with respect to white matter microstructural pattern, in terms of axonal brain structure. Mood itself has been shown to have potential negative effects on cognition, in particular attention, which may serve to then affect cognition itself.<sup>41-43</sup> Thus, given that there are known effects of hormone therapy on mood,<sup>16,17</sup> there may be secondary effects of hormone therapy on cognitive functioning. These findings make a strong case for taking hormone status into consideration when interpreting findings, because of their potential effect test selection, normative data selection, and interpretation (discussed later).

## CONSIDERATIONS FOR GENERAL ASSESSMENT AND TESTING

The experience of gender dysphoria and being transgender in a cisgender world is incredibly profound. Being transgender has an impact on many different areas of psychological functioning in ways that leading researchers and clinicians are just beginning to elucidate. No formal guidelines exist for interpreting test data in light of the unique experiences of transgender client. Transgender clients may present for the same reasons that cisgender people present for psychological assessment. These include, but are not limited to, neuropsychological and personality testing. This section outlines specific considerations for these types of testing and discusses the use of instruments that rely on gender-based norms.

### *Neuropsychological Assessment*

Neuropsychological evaluations consist of batteries of standardized tests, which have been administered to large sets of individuals, ultimately creating a set of normative data. These data are often stratified by several factors, including age, education, race/ethnicity, and gender<sup>44,45</sup>; the last factor becomes a substantial point of

consideration when considering clinical evaluations of transgender individuals, particularly when considering the aforementioned evidence of cognitive changes with transition<sup>31,32</sup> as well as changes on imaging.

At this juncture, there does not exist a specific normative basis for transgender individuals. Furthermore, it is unlikely that such a normative basis will be on the horizon for the transgender population in the near future, for many if any tests, based on numerous much larger classes of minority individuals (eg, Asian Americans) have not yet been afforded this privilege. It has been established in many cases that minority individuals are often at a disadvantage, insofar as being overly pathologized when conventional normative data are used.<sup>46,47</sup> Thus, it seems unlikely that a comparatively smaller group of minority individuals, namely the transgender population, will be represented on a normative basis in the near future. The development of stratified normative data is further complicated because many transgender people represent multiple minority statuses. For example, norms for Hispanic lesbian transgender women will likely never exist.

Additionally, in the absence of specific normative data for this population, ideally research would be conducted to investigate which set of normative data to use. For example, in other such cases it has been determined that group X functions more closely overall to the Y set of norms and thus that can be adopted as a clinical standard to use, in the absence of group X's own set of normative data. With this dearth of transgender-specific normative data, it behooves the field to begin a discussion of best practices. Utilization of a test or task that does not use gender-stratified norms may be the optimal solution.

In the absence of tests normed on a transgender population, test selection should be a factor of consideration for clinicians. Many clinicians, however, may use fixed batteries or have measures that utilize gender-stratified norms and with which they are more comfortable. Furthermore, there may exist good clinical reason to not use these measures in some occasions, for example, if there is not a measure of equal (to the clinician's standard measures) or acceptable (per the clinician's estimation) clinical rigor, whether with respect to the task itself, specific aspect of the domain assessed, or the robustness of the norms. Thus, in these cases, until the area has been better investigated, it may be most cautious and prudent to use a gender-stratified (ie, with normative data for both cisgender men and cisgender women) rigorous test, per the clinician's standards, with norms of the clinician's choosing based on clinical judgment and then proceed to score this with each set of gender norms. An additional step may then be to include a non-gender-normed measure within the same domain, such that comparisons can be made.

### ***Personality/Psychopathology Assessment***

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The most widely used personality instrument is the MMPI – 2nd edition (MMPI-2).<sup>48</sup> It is commonly used in evaluations that have an impact on personnel selection and custody hearings, areas where transgender people are typically discriminated against. MMPI-2 interpretations have significant implications for the lives of this population. Compared with controls, elevations have been reported on almost every scale in transgender samples.<sup>6,17,49</sup> MMPI-2 scales are designed to measure psychopathology (eg, hypochondria, depression, and paranoia). Scale elevations are interpreted as clinically significant and used to support diagnoses and inform treatment. Most reports indicate this population is more likely to show several scale elevations, especially the earlier they are in their identity development and transition process. This assessment tool has been used with transgender people for decades<sup>50</sup> and has been researched with this population more than any other personality assessment.<sup>6,15,51</sup> As such, the MMPI-2 is the focus of this section.

Cultural variables unique to the transgender population are thought to have an impact on the MMPI-2 scales and scales of similar personality assessment instruments. The hypochondria and hysteria scales may be influenced by experiences of gender dysphoria that revolve around bodily image disturbance. Depression and anxiety scales may be elevated as a result of gender minority stress, gender dysphoria, a combination of the 2, or independently. The psychopathic deviate scale is thought to be susceptible to elevations related to interpersonal difficulties caused by the overwhelming lack of acceptance of transgender people in society.<sup>15</sup> The masculinity/femininity scale may or may not be elevated depending on which gender template was used and if the person is gender conforming in gender expression. Elevations on the paranoia scale could be influenced by feelings of being misunderstood, mistreated, suspicious and guarded, lonely, resentful toward family members, and afraid of physical attack.<sup>52</sup> These paranoia scale elevations may be more of an indication of high rates of discrimination and family rejection<sup>10,53,54</sup> and thus may be realistic appraisals instead of a true measure of paranoia. Finally, increased scores on the schizophrenia scale may be reflective of strained family relationships, social alienation, and questioning of self-worth and identity.<sup>48</sup> Both paranoia and schizophrenia scales have also been found elevated in African American populations related to cultural mistrust and minority stress,<sup>55</sup> likely paralleling gender minority stress experienced in transgender populations.

Multiple MMPI-2 scores have been found to change in a more healthy direction after 3 months of hormone therapy in transgender men.<sup>17</sup> Previously, it had been well established that MMPI-2 profiles remain stable over the course of a lifetime.<sup>56</sup> Historically, transgender people were required or expected to undergo intensive psychotherapy as well as psychological testing before accessing hormone therapy. This finding of quick, positive shift in MMPI-2 scores was unexpected, because even intensive psychotherapy multiple times per week for a period of several years has not been found to have an impact on MMPI-2 scores.<sup>57</sup> Because this instrument is susceptible to significant changes related to hormone therapy to such an extent not previously been reported in the MMPI-2 literature,<sup>17</sup> it is not thought to present an accurate clinical picture of clients' psychological functioning present early in their gender transition.

Because the concepts of gender minority stress, gender dysphoria, and gender transition have only begun to be understood in the past few years, clinicians have been providing interpretations based on MMPI-2 data without considerations of how these concepts may be having an impact on the psychological functioning of their clients. Unfortunately, this lack of knowledge has likely harmed this population. For example, a transgender woman who is fighting for custody may have an MMPI-2 profile with elevations on scales 4 and 8. Traditionally, elevations on scales 4 and 8 are given a poor prognosis due to the characterological nature of the pattern of psychopathology.<sup>52</sup> Elevations in scales 4 and 8 in transgender clients, however, may not result from the same underlying psychological phenomena as in the general population. It is possible that scales 4 and 8 are elevated in this case because the scales are picking up on her experience of social ostracization, being fired from her job for being transgender (which is legal in her state), being removed from the restroom by police for not "looking like a woman," not being understood by her spouse who is divorcing her and attempting to take the children away from her because she is transgender, being chronically misgendered, and other common experiences shared by transgender individuals. Interpretation of her MMPI-2 scores without consideration of these variables is more likely to result in denying custody of her children than an affirmative (ie, competent) assessment. In this way, use of this test and other tests that are not normed on this population by clinicians who lack training with this population has resulted in harming an already vulnerable population. Due to susceptibility to change with hormone therapy, multiple unique

cultural variables that must be brought into consideration, lack of normative data from the transgender population, and the potential for artificial scale elevations, MMPI-2 profiles should be used sparingly and interpreted with caution in this population, especially before initiation of medical or surgical transition.

### ***Do I Use the Men or Women Scoring Template?***

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The most common question asked by clinicians who are assessing transgender clients is, “Do I score them as man or woman?” There is no standardized method of choosing which template to use for transgender clients. Affirmative assessment should aim not to use any assessments that are scored based on cisgender gender norms, unless a nongendered scoring option does not exist. When faced with choosing a gender template, the question must first be pondered, “Is there a reason to use a gender-normed test with this client?” Ideally, clinicians would not use tests that are scored using gender (ie, cisgender) norms with this population, because those norms are more than likely created from all cisgender participants and are not generalizable to this population. It is most consistent with affirmative practice to use extensive history and symptom inventories to answer the assessment question if at all possible. If all these factors are considered and a gender-normed test still is used, it may be best to score using both templates. Because there are no norms for transgender clients on these tests, simply picking 1 template is not necessarily the most valid answer. Research has indicated that the choice of gender template may result in different findings,<sup>17</sup> so the choice does matter. Once the test is scored twice, it is advisable to interpret the findings in the context of the other data collected to determine if the findings from either the man or woman template are more in line with the rest of the information from the assessment. When writing up the results, be sure to indicate that tests were used that were not normed on this population, that results were generated using both gender templates, the rationale for relying more heavily on 1 gender template more than the other, and a statement the data should be interpreted with caution. If the template cannot be scored twice, using the gender of the template that is most congruent with the client’s gender identity may feel affirming to clients who identify as either man or woman. Clinicians should be mindful that scoring with 1 gender template may result in higher levels of psychopathology than the other for the same test data, and this may have an impact with some scales more than others (MMPI-2).<sup>17</sup>

If using assessment inventories that have not been normed on this population may cause harm, what can be done to mitigate that harm? It is important to acknowledge that this problem exists and to recognize that many assessments fail to accurately represent the psychological functioning of transgender people and that interpretation of data without an affirmative, competent approach has caused harm to this population. One novel instrument, the Gender Minority Stress and Resilience scale,<sup>25</sup> may be used to generate data on a transgender person’s experience of gender minority stress. Information gained from the Gender Minority Stress and Resilience scale could be used to inform more accurate case conceptualization when interpreting testing results from all other assessment instruments, because none currently exists that has been normed on this population. Until normative data with this population are created, clinicians should also consider not using standardized assessments and relying more heavily on the history in light of gender dysphoria, gender minority stress, and gender transition status. Scores of transgender clients may be artificially inflated and may not be indicative of psychopathology, especially if a client is early in the identity formation or gender transition process. The use of symptom inventories that do not use gender-based norms (eg, Beck Depression Inventory, 2nd edition, or Symptom



Checklist-90-Revised) may be considered as alternatives to the MMPI-2 and other measures of psychopathology. Typically, graduate-level assessment courses do not provide adequate training on testing with transgender clients. Therefore, continuing education as well as consultation with clinicians who have more knowledge and experience working with this population is an important step.

## EVALUATION FOR MEDICAL AND SURGICAL TRANSITION

7th version of the WPATH standards of care<sup>26</sup> provides criteria for hormone therapy and multiple surgeries related to gender transition. They also include guidance on domains of assessment, yet they do not mention specific psychological assessment inventories. This has led to individual practitioners creating their own assessment process, some including testing instruments whereas others relying on an extensive clinical interview with psychoeducation on effects and risks of the treatment. In this area, clinicians tend to work with limited evidence and without evidence-based assessment protocols. Those who are using assessment instruments to help answer the question of whether or not a client is ready for medical transition are using tools that were not created for the purposes they are used for. This is akin to attempting to screw on a lightbulb with a hammer. Taking the analogy a step further, deciding whether to use the female or male template is like deciding between a hammer with a larger striking face or a smaller striking face to screw on a lightbulb; neither is adequate or effective.

Given the dearth of literature or specific guidance with respect to evaluation for gender transition-related surgeries, to discuss best practice standards, it may be useful to examine these factors in other types of presurgical evaluations that are used in the general population. Evaluation protocols for epilepsy, organ transplant, and bariatric surgeries have a long history of research and practice.<sup>58</sup> When examining common themes in these types of evaluations, it is important to keep in mind that these evaluations do not, as a rule, involve only 1 minority population whose candidacy for evaluation is directly related to their minority status.

Presurgical evaluation of cognitive and mental health variables is common for various types of surgeries. The rationale behind requiring this type of evaluation or the reasoning for the best practice to include this, however, is variable given the risks involved to patients in the surgical procedure and purpose of the evaluation.<sup>59</sup> For example, when used for presurgical evaluations prior/to determine candidacy for epilepsy surgery, the goal has historically been to establish baseline level of cognitive functioning across domains and to predict postoperative performance, because there may be changes noted or expected in some cases. In the past, the purpose had historically included localizing zones of epileptogenic activity. This is no longer a focus of the evaluations, although they are still used to determine if there are widely discrepant findings between imaging and cognitive functioning (ie, if electrographic and cognitive data findings are not at in keeping).<sup>60</sup> These findings may ultimately determine appropriateness for surgery candidacy based on medical outcomes and help to track and predict cognitive outcomes.

In cases of transplant evaluations, wherein a donor organ is transplanted into a patient to replace a compromised organ, the goal is often to assess capacity for informed consent and willingness/capacity to adhere to appropriate aftercare, with the notion that this may have implications to the individual's overall health.<sup>61</sup> Although different guidelines exist depending on the type of transplant, each type of transplant assessment generally includes considerations of ability to adhere to after-care, quality of life, and likelihood of failure (from a medical standpoint).<sup>62</sup>

Conversely, the purpose of presurgical bariatric evaluations is different. For these evaluations, “[s]uccessful outcome for bariatric surgery is largely dependent on patients’ ability to adhere to postoperative behavior changes,”<sup>63</sup> where successful outcome is weight reduction. This factor, success, has been found related to psychosocial and behavioral variables,<sup>64,65</sup> because there are interpersonal differences in adjusting to the modifications needed in lifestyle and eating behaviors that can be predicted to an extent by the aforementioned psychosocial and behavioral variables. Thus, this type of evaluation is aimed at determining whether or not the therapeutic intervention will be successful. As such, it has been argued that in this case a candidate should be “unconditionally” subjected to a psychological evaluation, not to deny surgical candidacy, but to “allow for early identification of factors potentially threatening the effectiveness of the treatment, but also for elimination or at least mitigation of their harmful influence on the surgical outcome.”<sup>64</sup> As previously stated, it has been demonstrated that hormonal transition is more likely than extensive therapy to lead to positive MMPI-2 scores in transgender people; the transgender and bariatric surgery candidate populations and the relative purposes of presurgical evaluation differ fundamentally.<sup>17</sup>

In the bariatric surgery literature, there is a common belief that if clinically significant psychopathology symptoms are present and are related to current weight, they will resolve once weight loss has begun or postsurgically. This belief has not been consistently supported empirically, however, with some studies in support whereas other studies indicating persistence of symptoms postsurgically and still others indicating re-emergence of symptoms after initial resolution/abatement.<sup>65</sup> Were there a stronger relationship between resolution of symptoms of psychopathology that did mitigate or resolve after successful surgical outcome, it could be argued that there would be additional support to suggest that the presurgical evaluation should not be used in a gate-keeping manner.

In light of these apparent differences in the purpose and nature of presurgical evaluation for surgeries related to gender transition and those reviewed, a medical competency model may be best suited, in which individuals are evaluated for capacity to make medical decisions largely on their ability to understand risks and benefits of the procedure as well as alternatives, often in the form of an interview.<sup>66,67</sup> The functional elements of capacity can be broken into 4 elements,<sup>66,68</sup> namely, expressing choice (ie, the ability to communicate a treatment choice in a consistent manner without reflecting decisional impairment), understanding (ie, the ability to understand diagnostic and treatment information, including risks, benefits, and alternatives), appreciation (ie, ability to make meaning of how these consequences may play out in an individual’s personal life), and reasoning (ie, ability to describe the aforementioned information in an individual’s own terms and to process this information in a logical and rational manner).

These components are often best assessed through an interview, with the need for further testing only if 1 of these elements includes questions outside the scope of the interview or if questions about capacity remain after the interview is complete. Given the differences between presurgical evaluations with the transgender population and with presurgical evaluations for other populations, in addition to the notion that alternative forms of assessment are restrictive in nature, an interview based on the medical competency model would be the more affirmative and practice-supported form of presurgical evaluation. Although no standard clinical interview exists for presurgical evaluation in transgender clients, the use of psychological and neuropsychological assessment batteries are not included in an affirmative evaluation unless a specific case requires the collection of further information. An affirmative presurgical interview,

at a minimum, includes a standard medical and mental health history, history of gender identity development, and preparedness for undergoing the specific procedure, including informed consent and education on preoperative and postoperative care as well as the procedure, social and family support, and practical preparation.<sup>69</sup>

## SUMMARY

As outlined in this article, standards for affirmative assessment with transgender clients are needed that are evidence based. The field is open for norming commonly used testing instruments as well as determining gender-neutral norms in tests that currently use a gender-based scoring and interpretation system. To avoid harm, clinicians who lack adequate knowledge and training on assessment with transgender clients should seek out supervision and consultation from more experienced clinicians and reach out to experts.

When conducting pre-hormone evaluations, assessors should keep in mind the evidence to support mood and cognitive changes associated with initiating hormone therapy. Although there is room for additional research exploring the mechanisms and predictors of such change, it cannot be presumed that no changes will occur after initiating hormone therapy. Furthermore, withholding hormone therapy from a transgender adult on the basis of suicidality or a mood disorder, which would likely respond well to hormone therapy, is not an affirmative practice and is likely to cause harm. Pre-surgical evaluations for surgery related to gender transition are fundamentally different from pre-surgical evaluations for other conditions in their purpose. A medical decisional capacity model is more in line with an affirmative assessment approach.

## REFERENCES

1. Singh A, Dickey I. Introduction. *Affirmative counseling and psychological practice with transgender and gender nonconforming clients*. Washington, DC: Author; 2015.
2. Cohen-Kettenis P, Gooren L. Transsexualism: a review of etiology, diagnosis and treatment. *J Psychosom Res* 1999;46:315–33.
3. Hidalgo MA, Ehrensaft D, Tishelman AC, et al. The gender affirmative model: what we know and what we aim to learn. *Hum Dev* 2013;56:285–90.
4. Fleming M, Cohen D, Salt P, et al. A study of pre- and postsurgical transsexuals: MMPI characteristics. *Arch Sex Behav* 1981;10(2):161–70.
5. Gomez-Gil E, Vidal-Hagemeyer A, Salameo M. MMPI-2 characteristics of transsexuals requesting sex reassignment: comparison of patients in pre-hormonal and pre-surgical phases. *J Pers Assess* 2008;90:368–74.
6. Miach P, Berah E, Butcher J, et al. Utility of the MMPI-2 in assessing gender dysphoric patients. *J Pers Assess* 2000;75:268–79.
7. Clements-Nolle K, Marx R, Katz M. Attempted suicide among transgender persons: the influence of gender-based discrimination and victimization. *J Homosex* 2006;51:53–69.
8. Hepp U, Kraemer B, Schnyder U, et al. Psychiatric comorbidity in gender identity disorder. *J Psychosom Res* 2005;58:259–61.
9. Fleming M, MacGowan B, Costos D. The dyadic adjustment of female-to-male transsexuals. *Arch Sex Behav* 1985;14:47–55.
10. Hendricks ML, Testa RJ. A conceptual framework for clinical work with transgender and gender nonconforming clients: an adaptation of the minority stress model. *Prof Psychol Res Pract* 2012;43:460–7.

11. Lev AI. Disordering gender identity: gender identity disorder in the DSM-IVTR. *J Psychol Human Sex* 2005;17:35–69.
12. de Vries A, Cohen-Kettenis P. Management of gender dysphoria in children and adolescents: the Dutch approach. *J Homosex* 2012;59:301–20.
13. Edwards-Leeper L, Spack NP. Psychological evaluation and medical treatment of transgender youth in an interdisciplinary “Gender Management Service” (GeMS) in a major pediatric center. *J Homosex* 2012;59(3):321–36.
14. Leibowitz S, Telingator C. Assessing gender identity concerns in children and adolescents: evaluation, treatments, and outcomes. *Curr Psychiatry Rep* 2012;14(2):111–20.
15. de Vries AL, Doreleijers TA, Steensma TD, et al. Psychiatric comorbidity in gender dysphoric adolescents. *J Child Psychol Psychiatry* 2011;52(11):1195–202.
16. Gómez-Gil E, Zubiurre-Elorza L, Esteva I, et al. Hormone-treated transsexuals report less social distress, anxiety and depression. *Psychoneuroendocrinology* 2012;37:662–70.
17. Keo-Meier CL, Herman LI, Reisner SL, et al. Testosterone treatment and MMPI-2 improvement in transgender men: a prospective controlled study. *J Consult Clin Psychol* 2015;83(1):143–56.
18. Davis S, Meier SC. Effects of testosterone treatment and chest reconstruction surgery on mental health in female-to-male transgender people. *Int J Sex Health* 2014;26:113–28.
19. Gomez-Gil E, Canizares S, Torres A, et al. Androgen treatment effects on memory in female-to-male transsexuals. *Psychoneuroendocrinology* 2009;34:110–7.
20. van Goozen SHM, Cohen-Kettenis PT, Gooren LJG, et al. Activating effects of androgens on cognitive performance: causal evidence in a group of female-to-male transsexuals. *Neuropsychologia* 1994;32:1153–7.
21. van Goozen S, Slabbekoorn D, Gooren L, et al. Organizing and activating effects of sex hormones in homosexual transsexuals. *Behav Neurosci* 2002;116:982–8.
22. American Psychological Association. Guidelines for psychological practice with transgender and gender nonconforming people. *Am Psychol* 2015;70(9):832–64.
23. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychol Bull* 2003;129:674–97.
24. Blosnich J, Brown G, Shipherd J, et al. Prevalence of gender identity disorder and suicide risk among transgender veterans utilizing veterans health administration care. *Am J Public Health* 2013;103:e27–32.
25. Testa RJ, Habarth J, Peta J, et al. Development of the gender minority stress and resilience measure. *Psychol Sex Orientat Gen Divers* 2015;2(1):65–77.
26. Coleman E, Bockting W, Botzer M, et al. Standards of care for the health of transsexual, transgender, and gender-nonconforming people: version 7. *Int J Transgend* 2011;13:165–232.
27. Olson-Kennedy A. Clinical complexities of gender dysphoria. Presented at the annual Gender Infinity conference. Houston, TX, September 16, 2016.
28. Mizock L, Fleming M. Transgender and gender variant populations with mental illness: implications for clinical care. *Prof Psychol Res Pract* 2011;42(2):208–13.
29. Substance Abuse and Mental Health Services Administration. Ending conversion therapy: supporting and affirming LGBTQ youth. HHS Publication No. (SMA) 15–4928. Rockville (MD): Substance Abuse and Mental Health Services Administration; 2015.

30. Nowell A, Hedges LV. Trends in gender differences in academic achievement from 1960 to 1994: an analysis of differences in mean, variance and extreme scores. *Sex Roles* 1998;39:21–43.
31. Hyde J. The gender similarities hypothesis. *Am Psychol* 2005;60(6):581–92.
32. Wai J, Cacchio M, Putallaz M, et al. Sex differences in the right tail of cognitive abilities: a 30-year examination. *Intelligence* 2010;38:412–23.
33. Newfield E, Hart S, Dibble S, et al. Female-to-male transgender quality of life. *Qual Life Res* 2006;15:1447–57.
34. Colizzi M, Costa R, Todarello O. Transsexual patients' psychiatric comorbidity and positive effect of cross-sex hormonal treatment on mental health: results from a longitudinal study. *Psychoneuroendocrinology* 2014;39:65–73.
35. Danovitch P, Lundin PA, Murphy KJ. The evaluation of renal transplant candidates: clinical practice guidelines1. *Cancer* 1995;8:11.
36. Dubois LZ. Associations between transition-specific stress experience, nocturnal decline in ambulatory blood pressure, and C-reactive protein levels among transgender men. *Am J Hum Biol* 2012;24:52–61.
37. Meier SC, Fitzgerald K, Pardo S, et al. The effects of hormonal gender affirmation treatment on mental health in female- to-male transsexuals. *J Gay Lesb Ment Health* 2011;15:281–99.
38. van Goozen S, Cohen-Kettenis P, Gooren L, et al. Gender differences in behaviour: activating effects of cross-sex hormones. *Psychoneuroendocrinology* 1995;20:343–63.
39. Slabbekoorn D, van Goozen S, Megens J, et al. Activating effects of cross-sex hormones on cognitive functioning: a study of short-term and long-term hormone effects in transsexuals. *Psychoneuroendocrinology* 1999;24:423–47.
40. Rametti G, Carrillo B, Gomez-Gil E, et al. The microstructure of white matter in male to female transsexuals before cross-sex hormonal treatment. A DTI study. *J Psychiatr Res* 2011;45:949–54.
41. Elliott R. The neuropsychological profile in unipolar depression. *Trends Cogn Sci* 1998;2:447–54.
42. Porter RJ, Robinson LJ, Malhi GS, et al. The neurocognitive profile of mood disorders—a review of the evidence and methodological issues. *Bipolar Disord* 2015;17:21–40.
43. Rametti G, Carrillo B, Gomez-Gil E, et al. White matter microstructure in female to male transsexuals before cross-sex hormonal treatment. A diffusion tensor imaging study. *Psychoneuroendocrinology* 2012;37:1261–9.
44. Mitrushina M, Boone KB, Razani J, et al. *Handbook of normative data for neuropsychological assessment*. New York: Oxford University Press; 2005.
45. Strauss E, Sherman EM, Spreen O. *A compendium of neuropsychological tests: administration, norms, and commentary*. American Chemical Society; 2006.
46. Campbell AL Jr, Ocampo C, Rorie KD, et al. Caveats in the neuropsychological assessment of African Americans. *J Natl Med Assoc* 2002;94(7):591.
47. Heaton RK, Taylor M, Manly J. Demographic effects and use of demographically corrected norms with the WAIS-III and WMS-III. *Clinical Interpretation of the WAIS-III and WMS-III* 2003;181.
48. Butcher J, Graham J, Tellegen A, et al. *Minnesota multiphasic personality inventory—2 (MMPI-2): manual for administration, scoring, and interpretation (Rev. Ed.)*. Minneapolis (MN): University of Minnesota Press; 2001.
49. de Vries A, Kreukels B, Steensma T, et al. Comparing adult and adolescent transsexuals: an MMPI-2 and MMPI-A study. *Psychiatry Res* 2011;186:414–8.

50. Leavitt F, Berger J, Hoepfner J, et al. Presurgical adjustment in male transsexuals with and without hormonal treatment. *J Nerv Ment Dis* 1980;168(11):693–7.
51. Tsushima W, Wedding D. MMPI results of male candidates for transsexual surgery. *J Pers Assess* 1979;43(4):385–7.
52. Duckworth J, Anderson W. MMPI & MMPI–2 interpretation manual for counselors and clinicians. 4th edition. Levittown (PA): Taylor & Francis; 1995.
53. Bockting WO, Miner MH, Swinburne Romine RE, et al. Stigma, mental health, and resilience in an online sample of the US transgender population. *Am J Public Health* 2013;103:943–51.
54. Lombardi E, Wilchins RA, Priesing D, et al. Gender violence: transgender experiences with violence and discrimination. *J Homosex* 2002;42:89–101.
55. Frueh BC, Smith DW, Libet JM. Racial differences on psychological measures in combat veterans seeking treatment for PTSD. *J Pers Assess* 1996;66:41–53.
56. Spiro A, Butcher JN, Levenson RM, et al. Change and stability in personality: a 5-year study of the MMPI-2 in older men. In: Butcher JN, editor. *Fundamentals of MMPI-2: research and application*. Minneapolis (MN): University of Minnesota Press; 2000. p. 443–62.
57. Gordon RM. MMPI/MMPI-2 changes in long-term psychoanalytic psychotherapy. *Issues Psychoanal Psychol* 2001;23:59–79.
58. Mitchell K. Preoperative evaluation. *Am Fam Physician* 2000;62(2):387–96.
59. King M. Preoperative evaluation. *Am Fam Physician* 2000;62:387–96. Northwestern University Medical School, Chicago (IL).
60. Rosenow F, Lüders H. Presurgical evaluation of epilepsy. *Brain* 2001;124:1683–700.
61. Danovitch GM, Cohen DJ, Weir MR, et al. Current status of kidney and pancreas transplantation in the United States, 1994–2003. *American Journal of Transplantation* 2005;5:904–15.
62. Steinman TI, Becker BN, Frost AE, et al. Guidelines for the referral and management of patients eligible for solid organ transplantation. *Transplantation* 2001;71(9):1189–204.
63. Bauchowitz AU, Gonder-Frederick LA, Olbrisch ME, et al. Psychosocial evaluation of bariatric surgery candidates: a survey of present practices. *Psychosom Med* 2005;67(5):825–32.
64. Dziurawicz-Kozłowska AH, Wierzbicki Z, Lisik W, et al. The objective of psychological evaluation in the process of qualifying candidates for bariatric surgery. *Obes Surg* 2006;16:196–202.
65. Edwards-Hampton SA, Wedin S. Preoperative psychological assessment of patients seeking weight-loss surgery: identifying challenges and solutions. *Psychol Res Behav Manag* 2015;8:263–72.
66. American Bar Association, & American Psychological Association. *Assessment of older adults with diminished capacity: a handbook for psychologists*. Washington, DC: Author; 2008.
67. Sabatino CP. The new uniform health care decisions act: paving a health care decisions superhighway? *MD Law Rev* 1994;53:1238.
68. Berg JW, Appelbaum PS, Lidz CW, et al. *Informed consent: legal theory and clinical practice*. New York: Oxford University Press; 2001.
69. Deutsch M. Gender-affirming surgeries in the era of insurance coverage: developing a framework for psychosocial support and care navigation in the perioperative period. *J Health Care Poor Underserved* 2015;27:1–6.