International Journal of Gynecology and Obstetrics 130 (2015) 257–260

Contents lists available at ScienceDirect

International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo

CLINICAL ARTICLE

Results of the Minnesota Multiphasic Personality Inventory-2 among gestational surrogacy candidates

Susan C. Klock [a,*], Sharon N. Covington [b]

[a] Section of Reproductive Endocrinology and Infertility, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA
[b] Shady Grove Fertility Reproductive Science Center, Rockville, MD, USA

ARTICLE INFO

Article history:
Received 5 December 2014
Received in revised form 18 February 2015
Accepted 29 April 2015

Keywords:
Gestational surrogacy
Infertility
Minnesota Multiphasic Personality Inventory-2 (MMPI-2)
Psychological testing
Surrogates

ABSTRACT

Objective: To obtain normative data on the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) personality test for gestational surrogate (GS) candidates. *Methods:* A retrospective study was undertaken through chart review of all GS candidates assessed at Shady Grove Fertility Center, Rockville, MD, USA, between June 2007 and December 2009. Participants completed the MMPI-2 test during screening. MMPI-2 scores, demographic information, and screening outcome were retrieved. *Results:* Among 153 included candidates, 132 (86.3%) were accepted to be a GS, 6 (3.9%) were ruled out because of medical reasons, and 15 (9.8%) were ruled out because of psychological reasons. The mean scores on each of the MMPI-2 scales were within the normal range. A score of more than 65 (the clinical cutoff) was recorded on the L scale for 46 (30.1%) candidates, on the K scale for 61 (39.9%), and on the S scale for 84 (54.9%). Women who were ruled out for psychological reasons had significantly higher mean scores on the validity scales F and L, and on clinical scale 8 than did women who were accepted ($P < 0.05$ for all). *Conclusion:* Most GS candidates are well adjusted and free of psychopathology, but candidates tend to present themselves in an overly positive way.

1. Introduction

The use of a gestational surrogate (GS) for in vitro fertilization (IVF) has become an accepted alternative for women who would otherwise not be able to carry a pregnancy. "Full surrogacy" refers to the use of the intended parents' gametes to create embryos through IVF with subsequent transfer to the GS, who thus contributes no genetic material to the embryo. "Partial surrogacy" (commonly known as "traditional surrogacy") refers to the artificial insemination of the GS using the intended father's sperm, meaning that the GS contributes genetic material [1]. According to a survey by the International Federation of Fertility Societies [2], 37% of respondent countries practice full surrogacy. Although surrogacy remains controversial, there is a continued demand for suitable GSs in both the non-commercial (European) and commercial (US) settings [3,4]. With the changing legislative climate worldwide, the need for appropriate candidates could grow.

Gestational surrogacy represents a substantial commitment, demanding psychological maturity and a healthy adjustment. The European Society of Human Reproduction and Embryology Task Force on Ethics and Law addressing surrogacy [1] has indicated that GS candidates should be adequately counseled and carefully screened. Special consideration should be given to the health and welfare of GSs; medical and psychological factors should be assessed during their selection [5]. The American Society of Reproductive Medicine Practice Committee issued guidelines for the psychological assessment of GS candidates [6], recommending the use of standard psychological testing as part of the screening process. Psychological testing provides a uniform information set that can augment the material obtained in a clinical interview. Similar to medical testing, personality testing conducted during the GS evaluation can provide objective information about how the candidate approaches the process, as well as any psychological strengths or vulnerabilities that could affect her participation. Various personality inventories have been used in the screening of GS candidates, which makes drawing conclusions across studies difficult [7–9].

The Minnesota Multiphasic Personality Inventory-2 (MMPI-2)—the most widely used personality test worldwide [10,11]—is an empirically derived self-report measure frequently used in employment settings to select personnel for high stress jobs, such as pilots or police officers. In the context of assisted reproduction, the test has been used for many years to assess oocyte donation candidates [12–15]. As with oocyte donors and job applicants, GS candidates could be motivated to present themselves in an overly favorable light or under-report psychological symptoms to ensure selection. A GS candidate who completes a transfer and pregnancy can be compensated by approximately US$25 000 (€18 275) [4]. Therefore, during the GS screening process, the mental health professional should employ a psychological test capable of accurately detecting attempts to make an excessively positive impression or

* Corresponding author at: Section of Reproductive Endocrinology and Infertility, Feinberg School of Medicine, Northwestern University, Chicago, IL 60611, USA. Tel.: +1 312 926 8244; fax: +1 312 695 4924.
E-mail address: sck318@northwestern.edu (S.C. Klock).

http://dx.doi.org/10.1016/j.ijgo.2015.03.030
0020-7292/

to under-report problem areas. The MMPI-2 includes validity scales to address this issue—scales L and K assess the propensity to under-report psychological symptoms and respond in a defensive fashion, and scale S assesses the tendency to present oneself in an overly favorable light.

Little is known about the MMPI-2 profiles of GS candidates. Previous studies have included few participants (<25) and have used the earlier version of the inventory [7,8,16]. The most recent study [17], which included 20 GS candidates, found that the mean MMPI-2 scale scores were within the normal range. Notably, 20%–40% of the studied candidates had validity scale scores above the clinical cutoff of 65, 1.5 standard deviations above the mean, indicating an attempt to present themselves too favorably [17].

Despite the continued practice of GS in third-party reproduction and the use of personality testing in the assessment process, no research has been published providing normative values from a large sample of GS candidates. The purpose of the current study is to describe normative data on the MMPI-2 for a relatively large sample of women screened as GS candidates, focusing particularly on the validity scales, thus providing a frame of reference for the use and interpretation of this test in GS candidate screening. Additionally, possible differences in the validity and clinical scales between women who are accepted in the GS program and those who are ruled out due to psychological concerns were also determined.

2. Materials and methods

A retrospective study was undertaken through chart review of all GS candidates assessed at Shady Grove Fertility Center, Rockville, MD, USA, between June 2007 and December 2009. The criteria for GS application were age older 21 years, having at least one live-born child, and fluency in English. The study was reviewed by the Institutional Review Board of Northwestern School of Medicine (Chicago, IL, USA) and deemed exempt because it was a review of pre-existing, de-identified data; thus, informed consent was not required.

Information regarding age, ethnic origin, education, marital status, number of children, screening outcome (accepted, excluded for medical reasons, or excluded for psychological reasons), and MMPI-2 scores was obtained from the medical records. During initial screening, a trained health professional had administered the MMPI-2 to the candidates using standard instructions.

The MMPI-2 consists of 567 true-false self-report items and takes approximately 1.5 hours to complete, requiring a 6th-grade reading level [10]. It contains four validity scales to assess the responder's approach to the test (L, lie; F, infrequency; K, correction; and S, superlative self-presentation). Higher scores on F indicate a propensity to over-report psychological symptoms or problems. Higher scores on L and K correspond with a defensiveness or under-reporting of psychological symptoms. The S scale was developed to assess the tendency of respondents to present themselves as a "highly virtuous, responsible individual, free from psychological problems" [18]. It consists of five dimensions: S1 (belief in human goodness), S2 (serenity), S3 (contentment with life), S4 (patience and denial of irritability and anger), and S5 (denial of moral flaws). Higher scores on S can suggest a person who is unrealistically reporting positive attributes and good adjustment. Two additional validity scales, vrin and trin, are used to assess inconsistencies in responses. The subscales F (b) and F (p) can be used to assess unlikely response patterns. The MMPI-2 also contains ten clinical scales: 1 (hypochondriasis), 2 (depression), 3 (hysteria), 4 (psychopathic deviate), 5 (masculinity/femininity), 6 (paranoia), 7 (psychasthenia), 8 (schizophrenia), 9 (hypomania), and 0 (social introversion). All raw scores are converted to T scores, with a mean of 50 and a clinical cutoff of 65, to indicate clinical significance on each scale. Scores above 65 on the validity scales indicate that the respondent could have been under-reporting or over-reporting psychological symptoms and therefore could have provided a biased or invalid test.

The demographic and outcome information was summarized by category. Mean MMPI-2 T scores for GS candidates were calculated and comparisons between groups (accepted vs excluded because of psychological reason) were conducted using *t* tests; $P < 0.05$ was considered significant. Additionally, the percentage of subjects who scored above 65 (the clinical cutoff on the validity scales) was calculated. Analyses were conducted using SPSS version 20 (IBM, Armonk, NY, USA).

3. Results

A total of 153 GS candidates were included. Most were white, married, and had at least two children (Table 1). Among the 153 candidates, 132 (86.3%) were accepted to be a GS, whereas 6 (3.9%) were ruled out because of medical reasons and 15 (9.8%) were ruled out because of psychological reasons.

All mean validity and clinical scale scores were within the normal range (Table 2, Fig. 1), indicating an appropriate level of defensiveness and acknowledgement of normal amounts of psychological symptoms. The highest mean validity score was on scale S and was close to the clinical cutoff, which is consistent with the demand characteristics of the GS selection process and attempts to present oneself in a positive light. The highest clinical scale score was masculinity/femininity, indicating that the respondents were somewhat nontraditional in their gender role behaviors. The number of candidates scoring at least 65 was low for most scales, although a high score was recorded for 54.9% of candidates on the S scale, 39.9% on the K scale, and 30.1% on the L scale (Table 3).

The mean score on the F scale was higher among women who were ruled out because of psychological reasons (48.4 ± 8.7) than among those who were accepted (43.5 ± 5.7; $P = 0.003$). Although both mean scores were within the normal range, the higher scores in the excluded group indicate that these women endorsed more items, signifying psychological symptoms or problems. Similarly, scores on the L scale were higher among women who were ruled out (68.6 ± 15.3 vs 57.9 ± 11.1; $P < 0.001$). The excluded women had a mean score above the cutoff, indicating that women might not have responded honestly and might have attempted to present themselves as well adjusted, minimizing any psychological and behavioral difficulties.

Women who were ruled out because of psychological reasons had a higher score on clinical scale 8 (schizophrenia) than did those who were accepted (50.4 ± 4.0 vs 46.2 ± 5.8; $P < 0.001$). Although both mean scores were within the normal range, the excluded group endorsed

Table 1
Demographic characteristics.[a]

Variable	Gestational surrogacy candidates (n = 153)
Age, y	31.5 ± 5.5
Ethnic origin	
White	125 (81.7)
African American	14 (9.2)
Hispanic	3 (2.0)
Asian	3 (2.0)
Other	3 (2.0)
Education	
High school graduate	39 (25.5)
High school and some college	49 (32.0)
College graduate	32 (20.9)
Postgraduate	30 (19.6)
Not available	3 (2.0)
Marital status	
Single	14 (9.2)
Married/partnered	124 (81.0)
Divorced/separated	13 (8.5)
Number of children	
1	30 (19.6)
2	56 (36.6)
3	44 (28.8)
4+	22 (14.4)

[a] Values are given as mean ± SD or number (percentage).