

A Psychosocial Description of a Select Group of Infertile Couples

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Increasing attention in the literature has focused on the relationship between psychosocial factors and infertility. This study presents a psychosocial profile of infertile couples over a two-year period. During this period, psychosocial data including life change, social support, and personality traits were obtained prospectively from 134 individuals participating in the In Vitro Fertilization Program of the Jones Institute of Reproductive Medicine at the Eastern Virginia Medical School. Instruments utilized included the Life Experiences Survey, the Family APGAR, the Friends APGAR, the Multidimensional Health Locus of Control, and the Eysenck Personality Inventory.

Despite the presumed adverse psychological influence of their infertility, Life Experience Survey scores for both men and women did not differ significantly from normative data. Family APGAR scores indicated a high degree of satisfaction with family function. Friends APGAR scores were somewhat lower than normative data. The Multidimensional Health Locus of Control, a measure of perception regarding factors influencing health outcomes, was unremarkable. The Eysenck Personality Inventory revealed a lower score on the neuroticism scale for the men. These psychosocial results were surprisingly normal.

Currently there is interest in the application of the biopsychosocial model to the study of fertility and pregnancy. A number of investigators have suggested that psychosocial factors may play a role in fertility, infertility, and pregnancy.¹⁻⁴ Infertility is a problem commonly seen by family physicians, as it occurs in approximately one of seven married couples (15 percent) in the United States.⁵ For couples with infertility refractory to conventional therapy, in vitro fertilization represents an attractive option. The most common indications for in vitro fertilization include tubal disease, male infertility, endometriosis, unexplained infertility, diethylstilbestrol exposure, immunologic infertility, cervical factors, and anovulation.⁶

The authors have had a unique opportunity to prospectively study the psychosocial, biological, and demographic characteristics of a large group of infertile couples. This study represents a psychosocial and demographic description of these couples. All couples were participants in the In Vitro Fertilization Program of the Jones Institute for Reproductive Medicine at the Eastern Virginia Medical School. Several of the instruments used in this study are widely employed within family medicine research for studying the biopsychosocial model.

METHODS

Study Population

The study included a total of 134 individuals; 58 married couples and an additional 18 women whose husbands did not provide psychosocial data for the study. Seventy-six women and 58 men participated. Study participants were English-speaking, married couples who were first-time patients in the Jones Institute In Vitro Fertilization Program. Study couples participated voluntarily and signed

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informed consent. Eighty-three percent of these couples were undergoing in vitro fertilization for the first time; 17 percent had previously attempted in vitro fertilization at other institutions. All couples underwent in vitro fertilization some time during the 21-month period from September 1985 to May 1987.

Study participants were given a questionnaire packet containing a consent form, patient instruction sheet, patient data sheet requesting social and demographic data, and four standardized, self-administered instruments assessing psychosocial characteristics. The high workload of the In Vitro Fertilization Program permitted the packets to be administered only when nursing time allowed. It was not possible, therefore, to administer the test in a true random fashion. The packets were given to 109 of 222 (49 percent) couples meeting the criteria. Of the 109 couples receiving the questionnaire packet, 76 (70 percent) of the wives and 58 (53 percent) of the husbands completed the questionnaires. Overall, the husbands were not as available for participation in the study.

The program nurse explained the study to the participants. She then instructed them on how to complete the questionnaire packets, and requested that they complete the questionnaires individually, confidentially, and at their leisure. Whenever possible, the questionnaire packet was given directly to both husband and wife by the program nurse. If the husband was not available on the initial visit, the wife was responsible for giving the packet to her husband. The completed questionnaires were returned anytime during the first few days of the in vitro fertilization cycle.

Information was also obtained from the patients' medical records and included past medical history and measures of sperm and egg quality. Biological results will be analyzed and correlated with psychosocial indicators and presented in a subsequent paper.

Instruments

Life Experience Survey. The instrument used for measurement of life experiences was the 57-item Life Experience Survey questionnaire, which assesses the positive and negative impact of major life events over the previous year.⁷

Family APGAR and Friends APGAR. Family function was measured by the Family and Friends APGARs, using a research instrument for each APGAR with 20-point and eight-point scales, respectively. This format is reported to yield some improvement in the psychometric quality of the instruments.⁸ These questionnaires assess the degree of satisfaction regarding interaction with family members and close friends.

Multidimensional Health Locus of Control. Used to measure locus of control, the Multidimensional Health Locus of Control⁹ is an 18-item questionnaire that assesses patient beliefs concerning the extent to which health outcomes are determined by their behavior. The MHLC contains subscales measuring the following:

1. Internality—the degree to which one believes he or she influences his or her own health
2. Chance—the belief that health outcomes are due to chance
3. Powerful others—the belief that health outcomes are influenced by other individuals.

Eysenck Personality Inventory. The Eysenck Personality Inventory assesses personality in terms of two independent dimensions: extraversion-introversion and neuroticism-stability. A lie scale is also incorporated to detect attempts to falsify responses.¹⁰

Data Collection and Management. Data collected on the questionnaire forms were supplemented with data extracted from the participants' medical records. Data were entered, managed, and analyzed using a spreadsheet software program.

RESULTS

Of the couples participating in this study, 58 percent were from the mid-Atlantic region (New York, Pennsylvania, New Jersey), 22 percent were from the south-Atlantic region (Maryland, Virginia, Washington, DC, North Carolina, Georgia, Florida), 14 percent were from the other areas of the United States, and 6 percent were from other countries.

The average age of the study participants was 34.5 years for women and 35.9 years for men. The average number of years married was 7.1 for women and 6.6 for men. Education levels equivalent to a college degree or higher were reported by 78.1 percent of the women and 87.7 percent of the men. The expense of an in vitro fertilization attempt did not represent a financial strain for 60.3 percent of the couples. The study participants were generally non-smokers, represented by 86.8 percent of the women and 89.7 percent of the men. At least one alcoholic beverage per week was consumed by 69.7 percent of the women and 82.3 percent of the men with an overall average of 4.5 drinks per week. Regular light exercise was reported for 56.4 percent of the women and 58.6 percent of the men.

The average duration of infertility for the couples was reported as 5.8 years. The majority of couples had well-

TABLE 1. LIFE EXPERIENCES SURVEY SCORES FOR INFERTILE COUPLES PARTICIPATING IN THE EASTERN VIRGINIA MEDICAL SCHOOL IN VITRO FERTILIZATION PROGRAM, BY SEX (female N = 76, male N = 58)

Life Events*	25th Percentile	50th Percentile	75th Percentile	Range
Negative				
Female	-7.0	-3.0	-1.0	0 to -23
Male	-5.0	-2.0	0.0	0 to -15
Positive				
Female	0.0	2.0	6.0	0 to 18
Male	0.0	2.0	5.0	0 to 15
Total				
Female	3.0	7.0	13.0	0 to 30
Male	2.0	5.0	9.3	0 to 22

* Skewed distribution prompted use of percentile data

defined biologic causes of infertility including 56 percent with tubal problems and 19 percent with male factor infertility.

Demographic data including the average age of the women and average duration of infertility, as well as medical diagnosis of infertility, were obtained both for eligible patients who were not given a questionnaire packet, and for those who were given questionnaire packets but did not return them. No significant differences were found in these demographic variables between either of these groups and the study participants.

Normative Life Experience Survey data show mean negative life change scores for men and women to be 6.2 and 7.0, mean positive life change scores to be 9.7 and 9.6, and mean total life change scores to be 15.9 and 16.6, respectively.⁷ Life Experience Survey scores reported by patients in this program did not demonstrate an increase over normative data in either positive or negative life events for men or women (Table 1). Distribution of the Life Experience Survey data were skewed and, therefore, more appropriately presented as percentile data.

Social support was measured by the Family and Friends APGARs (Table 2). The mean scores on the Family APGAR of 15.8 for women and 16.0 for men compare favorably with a normative value of 14.5, although this score was standardized on a college-aged population.⁸ The mean Friends APGAR scores were 6.0 for women and 5.4 for men. These scores compare with a mean normative value of 7.95.⁸

Multidimensional Health Locus of Control scores revealed no significant differences from normative data in any of the three dimensions assessed (Table 3). Normative values for the subscales measuring internality, chance, and powerful others are 25.1, 20.0, and 15.6, respectively.⁹

Eysenck Personality Inventory scores for men and

TABLE 2. APGAR SCORES FOR INFERTILE COUPLES PARTICIPATING IN THE EASTERN VIRGINIA MEDICAL SCHOOL IN VITRO FERTILIZATION PROGRAM, BY SEX (female N = 76, male N = 58)

APGAR	Mean	Standard Deviation	Median	Range
Family APGAR				
Female	15.8	3.7	16.0	6 to 20
Male	16.0	3.3	16.0	6 to 20
Friends APGAR				
Female	6.0	1.7	6.0	0 to 8
Male	5.4	1.5	5.0	2 to 8

TABLE 3. MULTIDIMENSIONAL HEALTH LOCUS OF CONTROL SCORES FOR INFERTILE COUPLES PARTICIPATING IN THE EASTERN VIRGINIA MEDICAL SCHOOL IN VITRO FERTILIZATION PROGRAM, BY SEX (female N = 76, male N = 58)

Subscales	Mean	Standard Deviation	Median	Range
Internality				
Female	25.5	4.2	26.0	15 to 35
Male	24.4	4.3	25.0	11 to 31
Chance				
Female	17.1	4.8	17.0	7 to 26
Male	17.8	4.3	19.0	6 to 26
Powerful others				
Female	15.8	5.0	15.0	6 to 25
Male	15.4	3.7	16.0	6 to 20

TABLE 4. EYSENCK PERSONALITY INVENTORY SCORES FOR INFERTILE COUPLES PARTICIPATING IN THE EASTERN VIRGINIA MEDICAL SCHOOL IN VITRO FERTILIZATION PROGRAM, BY SEX (female N = 70, male N = 52)

Subscales	Mean	Standard Deviation	Median	Range
Extraversion-introversion				
Female	10.6	3.7	11.0	1 to 18
Male	10.2	3.5	10.0	4 to 18
Neuroticism-stability				
Female	10.9	5.4	11.0	0 to 23
Male	6.0	4.4	6.0	0 to 19

women on the extraversion subscale were 10.2 and 10.6, respectively (Table 4). These scores rank approximately in the 40th percentile when compared with normative data collected in studies of American college students.¹⁰ The female study participants measured slightly above

the 16th percentile on the neuroticism subscale, while the men ranked slightly below the 30th percentile. The lie scale was not elevated for either men or women.

There were no significant differences between the responses on any of the psychosocial instruments of those women whose husbands contributed psychosocial data and those women whose husbands did not contribute psychosocial data.

DISCUSSION

As noted, approximately 15 percent of married couples can be classified as infertile and therefore are likely to come to the attention of the family physician. A recent discussion of the family physician's approach to infertility emphasized psychological issues.¹¹ Mahlstedt⁴ points out that "the process of diagnosing and treating infertility has a profound impact on the life of those couples who encounter it." She notes that this impact is greater if the treatment process is prolonged or unsuccessful. A variety of reactions are common and include a sense of loss, depression, and grieving. Berger¹² studied 16 couples after the husband had been identified as infertile. Fourteen of the women experienced anger toward their husbands and other psychiatric symptoms, and 11 husbands experienced a period of impotency.¹² In discussing the emotional aspects of infertility, Seibel and Taymor¹³ pointed out that "although many authors have noted increased psychological problems among infertile couples, few have provided evidence that these problems were a cause of infertility rather than a result of it." They concluded that "awareness of the intense, often overwhelming emotional turmoil that infertile couples often face allows the physician the opportunity to provide counseling as a part of the concern for maintaining, encouraging, and enhancing the well-being of his or her patients." Menning¹⁴ recommended treating infertility as a problem of the couple rather than the individual, as this allows both partners to be actively involved in their plan of care.

Although the couples described in this article were studied in a specialized infertility clinic setting, all of them were seen at the Jones Institute for the first time and had not undergone any previous medical or psychological evaluation at that institute. They did have documented infertility, which led to their acceptance in the *in vitro* fertilization program.

This study revealed a surprisingly optimistic picture of the 76 infertile couples. This finding is somewhat consistent with the work of Hearn and colleagues,¹⁵ who assessed psychological characteristics of couples in an *in vitro* fertilization clinic. Because of the strong interest within the family medicine literature in the hypothesis of high social

support modulating the effects of life change, the authors were particularly interested in investigating both recent life change and social support, as well as selected personality characteristics that seemed pertinent to the study of these patients.

It has been postulated that a high degree of life change is stressful regardless of whether the change is considered to be positive or negative.¹⁶ Sarason⁷ and others¹⁷ emphasize the relationship between stress and negative life change. In this study, neither the men nor the women were characterized by a high degree of recent life change, either of a positive or negative nature.

The Family APGAR has been shown to be a valid and reliable measure of family function.^{18,19} Scores for this study were equal to or above normative data presented in the literature. These scores indicate a surprisingly minimal amount of family dysfunction in couples presumably under a great deal of stress.

Friends APGAR scores were somewhat below the reported norm. This instrument was standardized on college students using the three-choice response format. This college population may also be in a situation in which friends play a more important role in the support system. Menning¹⁴ and others⁴ have noted that the infertility process itself might serve to estrange couples from their friends for a variety of reasons. Nevertheless, the patients basically had low life change and fairly high social support.

Multidimensional Health Locus of Control results indicated no significant difference from the normative values in any of the three subscales, nor was there a significant difference between the scores of men and women. The lack of abnormal findings in the dimensions measuring externality (chance and powerful others) contradicts results from an earlier study in this area indicating that "both infertile men and women perceived the locus of control over events in their lives as being external to themselves."²⁰

The Eysenck Personality Inventory results demonstrated a difference between the responses of women and men on the neuroticism scale. Men scored lower than the women, and low relative to normative data on this scale. No significant abnormalities were noted on the extraversion or lie scales. These results suggest a somewhat introverted, relatively stable personality pattern for both men and women. This finding compares with another recent study of *in vitro* fertilization participants using the Eysenck Personality Inventory. Morse and Dennerstein²¹ found mean neuroticism scores of 6.6 in a subgroup of patients presenting with organic causes of infertility and 10.1 in a subgroup of patients with idiopathic infertility. Using the California Personality Inventory, Given et al²² studied the psychological characteristics of couples undergoing *in vitro* fertilization. They found the men generally scored high on the psychological mindedness scale,

indicating high sensitivity to other people's needs and motives. They also found both male and female patients to be high achievers, independent, and ambitious.

There are many difficulties in applying results of this study too widely. This obviously select group of highly motivated couples had already had infertility diagnosed and were exploring the in vitro fertilization process. This process requires a certain degree of commitment as well as financial resources.

In summary, the literature suggests that infertility is very stressful. Results of this study, however, reveal surprisingly intact couples with reasonably sound psychosocial profiles. None of the standardized psychosocial instruments revealed any significant increase in psychological abnormalities or family dysfunction. Most couples need support and guidance from appropriate sources as part of the optimal treatment of infertility; however, these same couples may demonstrate remarkably strong psychosocial resources enabling them to better cope with their infertility.

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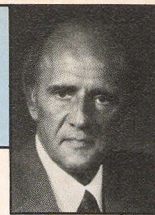
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MEDICAL DIRECTOR'S PAGE

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Home IV Antibiotic Therapy: An Introduction

Lowering health care costs while maintaining high quality care is a goal that all physicians strive for. An important step toward this goal is the development of home health care that is both therapeutically and economically effective. One particular aspect of home health care that is gaining acceptance is home intravenous antibiotic therapy.

Evolution of an Industry

Experts anticipate that over the next several years home IV antibiotic therapy will be one of the fastest growing segments of the home health care market. Today, physicians have access to an industry that provides necessary technology, personal services and pharmaceutical supplies — an industry devoted to home health care. With the growth of this industry, most physicians will be able to successfully manage many patients with a minimum of acute hospital care.

The Home IV Therapy Decision

Almost any patient who requires IV antibiotic therapy, and is hospitalized to receive that therapy, could be considered for treatment at home. However, four criteria are often applied before implementing home IV therapy:¹

1. No suitable oral therapy is available.
2. The patient's condition is stable enough for discharge, and the patient can monitor his/her own therapy.
3. The patient agrees to outpatient therapy after a full disclosure of responsibilities and potential problems.
4. The patient has a suitable home environment, including a phone for emergency communications and a refrigerator for antibiotic storage.

Any infection that responds to IV therapy can potentially be treated at home, including osteomyelitis, endocarditis, wound infections, urinary tract infections, septic arthritis and others.²

Many classes of antibiotics appear suitable for home IV infusion; however, antibiotics used in outpatient care should have low toxicity, a broad spectrum of

activity and a long half-life, allowing for less frequent dosing. Antibiotics with long half-lives enhance the convenience and cost effectiveness of home therapy and facilitate patient compliance.

Advantages

Home IV antibiotic therapy removes the risk of nosocomial infection. Receiving therapy at home in warm and familiar surroundings also provides psychological benefits. Another benefit is that patients in the home care environment become more active in their recovery. These intangibles appear to contribute to more rapid and predictable recovery.

There are also considerable financial advantages to home IV antibiotic therapy. For those patients who are able to work while receiving therapy, the benefits are obvious. Of course, savings are also accrued because patients are not hospitalized for long periods of time. In one study, the calculated savings ranged from \$2,791 to \$4,651 per patient.³

In addition, reimbursement for home services has greatly improved during the past five years. Many insurers now pay for outpatient therapy that can replace treatment given in the hospital. Congress has also provided for such reimbursement in the Medicare population under the catastrophic health insurance law that was recently enacted.

The success of home IV antibiotic therapy depends on a team effort employing sound case management by the physician and quality service from the home health care industry. Teamwork by these two groups will help ease the medical profession into a new era of health care.

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