Egypt. J. Psychiat. (1979), 2, 98—111

Psychological Affects of Oral Contraceptives

By A.R. Dabbs, J. Cramond and J. Hart

ABSTRACT

The first study represented a preliminary investigation of factors that might influence a woman's response to oral contraceptives. The instruments used were an interview and a psychometric battery formed of the Rotter Locus of control scale, the Leeds scale for the self-assessment of depression and anxiety (Snaith, Bridges and Hamilton 1965). The subjects were women attending for the first time.

The second study was designed to investigate in more detail the possible relationship between the use of the pill and concomitant mood changes. It concentrated on women upon regular use of oral contraceptives with women using other kinds of contraception as control. Repeated measures were taken over a single menstrual cycle.

The most important conclusion is that there is little evidence to suggest that oral contraceptives are likely to produce clinical depression in women seeking reliable birth control. Feelings of lowered mood do occur but cannot be directly related to the physiological effects of the pill.

A survey of the scientific literature relating to the oral contraceptive reveals a deal of apparently conflicting findings. Some authors seem to reach explicit conclusions in favour of the Pill and others directly against its use on the basis of very flimsy evidence. The general impression gained is that there is some vague unspecific relationship between the use of the oral contraceptive and alterations in the mood and sexual interest of the user. Typical of these reports is the study of Herzber **et al.** (1971). This study had the rare merit of involving a control group of women

using I.U.D.s but the measures employed leave a lot to be desired. In fact Herzber reported a 25% drop-out rate of his female subjects using the pill while the evidence about the I.U.D.s remains a mystery. The results are interpreted as suggesting that both groups revealed signs of depression while the oral contraceptive group showed a small increase in sexual interest.

The literature was well reviewed by Culberg (1972) accompanying a report of a double-blind cross-over study using various doses of oestrogen/progestogen. He concluded that 14% to 18% more women have adverse reactions to the contraceptive pill than to a placebo. Culberg accounted for this in terms of oestrogen or progestogen sensitivity and extended his argument to account for the reported incidence of pre-menstrual tension in some women who differentially responded to hormone treatments. He is less convincing in accounting for the side-effects in certain women who were in receipt of a placebo. In contrast a large scale survey conducted by the Royal College of Physicians (1974) suggested that the oral contraceptives increased the incidence of depression by some 30%. It concludes that the mood change cannot be directly related to the pharmacological action of the pill but involves psychological factors.

The question for the practising sex therapist is to try to identify some of the more important emotional or personality factors that might influence an individual woman's response to the Pill. Several authors have attempted to describe possible psychological mechanisms by which the Pill might produce a change in mood. There is the so-called "negative placebo effect" or "scapegoat effect" whereby some people blame all symptoms on drugs (Orhard, 1969). These have been suggestions that the important mechanism is guilt over interfering with natural processes and the separation between love-making and reproduction caused by contraception. Other authors have pointed to the admonitions from the church, the mass media, the more conservative members of the medical profession and even to the alterations in the pre-menstrual tension

syndrome (Parlee, 1973). Finally there remains the difficulties in assessing educational, religious or cultural differences which very likely affect the manner in which a woman perceives her use of contraception.

In an effort to try to make some sense of a very complex and confusing picture it was decided to attempt a series of small studies which might produce some guidance for sex therapists working in the geographic region of northern England being served by this particular clinic. Two such studies are reported in this paper.

The first study represented a preliminary investigation of factors that might influence or pre-determine a woman's response to oral contraceptives. On a priori grounds it was argued that the development of adverse reactions to the Pill was just as likely due to physiological as to psychological factors. A review of the literature had suggested that the following variables were likely to be important :

Previous knowledge/information about the likely affects of the Pill
The stability (permanence of the sexual relationship)
How the individual woman reached the decision to use the Pill
Attitudes to contraception and abortion
The presence of features of the pre-menstrual tension syndrome
The type of oral contraceptive prescribed
The woman's basic emotional state

Personality factors related to the perceived "locus of control". This latter variable might be described as the amount of responsibility a person takes for her own behaviour and experiences as opposed to the feeling that changes are imposed by external environmental events. Rotter (1966, 1979) suggests that there is a dimension ranging from totally internally controlled individuals who manage their own lives independently of the influence of external happenings and who perceive a relationship between personal behaviour and environmental consequences; to externally controlled persons who see little relationship between

their behaviour and the events in their personal world. The externally controlled individual feels at the mercy of events for which he regards himself to be in no-way responsible.

A series of young women attending a family planning centre for the first time were interviewed and the following psychometric instruments were administered. The Rotter locus of control scale, the Leeds scale for the self-assessment of Depression and Anxiety (Snaith, Bridges and Hamilton, 1976) and the Nowlis Mood Adjective check list (Nowlis, 1965). The initial interview consisted of a fairly short structured session lasting approximately 20 minutes prior to the administration of the questionnaires. The interview was directed towards obtaining information on the following topics :

Amount and source of prior information about oral contraceptives

Whether the decision to use the Pill was reached after discussion with partner or alone

Attitudes about contraception and termination

Frequency of visit to family medical practitioner over previous three months

Stability or permanence of present sexual relationship

At the close of the session each woman was weighed.

Following the series of interviews the first 15 young women of at least average education and intelligence, age range 16 years — 23 years, were selected for the study on the grounds that they had never previously taken synthetic steroids and were willing to cooperate in the study which would incur a three month follow-up appointment. They were advised that they were taking part in a project to obtain information concerning how women felt about using oral contraceptives. The contraceptive measures reported to date prior to attending the clinic were as follows :

Abstention from full intercourse	1
Withdrawal of male partner	1
Sheath plus withdrawal	3
Sheath	9

The contraceptives prescribed during the study were of two kinds. Eight women received Loestrin 30*. Both these products contain a low dose of oestrogen derivative. The formulation of the contraceptive was as follows :

Loestrigen 20	0.20 mg. ethinyloestradiol
	1.0 mg. norethisterone
Microgynon 30	0.30 mg. ethinyloestradiol
	1.5 mg. levonorgestral

RESULTS

Attempts were made to classify the information from the interviews into simple categories e.g. present-absent, positive-negative, yes-no. This effort resulted in a loss of information but enabled the material to be evaluated statistically. It was decided that the most appropriate technique of analysis was the non-parametric technique, Fisher's Exact Probability Test. At the follow-up interviews the psychometric devices were repeated and change scores obtained which could be related to the initial descriptive data. During the final interview the great majority of the women made few spontaneous comments about any alteration in their sexual enjoyment but three women stated that their sexual pleasure had increased as a result of contraceptive security. At this interview information was obtained about any side-effects experienced and the women were weighed again. None of the women would admit to having failed to take the Pill daily as prescribed. One woman failed to attend the follow-up session and could not be traced.

The attempt to statistically evaluate the many possible relationships between clinical information, personal history, type of medication and psychometric findings produced very little in the way of significant results. This is not surprising considering the small sample size. The significant results which did emerge are shown in Table 1.

---

* Manufacturer Loestrin Parke Davis
Microgynon Schering

TABLE I

	Reported side-effects	
Attitude towards contraception	Absent	Present
Positive	9	2
Negative	0	3

$p < 03$ two tailed test

	Reported side-effects	
Pevious pre-menstrual syndrome	Absent	Present
Present	3	5
Absent	6	0

$p \cdot 0.2$ two tailed test

N.B. Based on sample size of 14

The change in psychometric findings comparing scores prior to being prescribed the Pill with scores obtained at the three month follow-up were tested using Student's "t" test for correlated means. The only significant changes appeared on the Nowlis Adjective check list. The other scales revealed no significant changes and such changes that did appear did not seem to be related to particular information obtained a interview.

TABLE II

Significant Changes in Score Mood Adjective Checklist

Variable	**change**	**'t'**	**significance**
Elation	increase	2.48	.05
Fatigue	increase	2.86	.01
Social affection	decrease	2.65	.01
Sadness	increase	2.71	.01
Confusion	decrease	3.20	.01

The Leeds scales of Anxiety and Depression revealed no consistent alterations in score, indeed the scales seemed remarkably reliable. However ,it should be noted that the Leeds Scales seek to elicit symptoms while the Mood Adjective checklist might be thought to reflect internal feelings and attitudes.

CONCLUSIONS

There are many valid **criticisms that can** be fairly levelled at this **small study.** Not least of these is the lack of any control group and the small number of women taking part over a very short time period. However, the negative findings did serve to enable the therapists to perceive the problem more clearly and to recognise that gross changes in emotional state related to the use of the contraceptive Pill are relatively unlikely. It would seem that oral contraceptives of the low oestrogen type did not produce many side-effects of either a physical or psychological kind. Such problems as did occur, tended to happen for those women who had previously experienced pre-menstrual tension symptoms. Although there was some suggestion of minor changes in subjective mood, none of the subjects developed clinical signs of depression or anxiety.

The second study was designed to investigate in more detail the possible relationship between the use of the Pill and concomitant mood changes. Clearly physiological affects might be important and it was thought useful to try and distinguish between likely physical as opposed to psychological origins of such change in subjective feelings as might be demonstrated. Instead of selecting women about to start the use of oral contraceptives it was decided to concentrate upon regular users and compare them with women who employed other kinds of contraception. In an effort to tease out the possible physiological factors involved it was thought desirable to focus upon a single menstrual cycle in detail and to carry out repeated measures.

The subjects selected for this study comprised three groups of ten women in each, matched for age (range 24 years — 35 years) and basic education. The women in the oral contraceptive group were all in receipt of synthetic steroids of similar oestrogen/progestogen balance. Only those women regularly using pills of dosage oestrogen.05 mgs or less and progestogen 1.50 mgs or less were accepted. The second group consisted of women fitted with an inter-uterine device (coil) while the third group were regular users of the cervical cap or alternatively their husbands

reliably used sheaths. No women in any group were accepted for the study if they were currently receiving neuroleptic or thymoleptic medication or who had a previous psychiatric history. All these women agreed to be interviewed regularly over a 28 day period.

The interviews were carried out on the 4th, 12th, 16th and 26th days of a 28 day cycle, the first day of mentruation being counted as Day 1. These particular days were selected as being representative of the normal phases in the menstrual cycle during which the oestrogen/ progesteron balance varies (Dalton, 1954; Parlee, 1973). The women were interviewed in their homes and all seemed to appreciate the interest shown in them. On only six occasions was it necessary to cancel an interview and these women agreed to an alternative time within twenty four hours of the original appointment.

At each visit the women were asked to complete the Nowlis Mood Adjective checklist followed by a semi-structured interview to explore general feelings of sociability, activities, interest in sexual matters, and general bodily state. At the final interview on Day 26 specific questions were asked on the following topics :

experience of dysmenorrhea
premenstrual irritability
premenstrual depression
reasons for particular choice of contraceptive method
anxieties about contraception
physical side-effects
Psychological side-effects

RESULTS

The Nowlis items were grouped into the eleven clusters which had emerged from the original factor analysis. The score for each factor at each stage in the menstrual cycle was computed by averaging the scores from the individual items of each cluster.

This provided an individual profile for each woman's mood changes through the menstrual cycle. A two way analysis of variance was then

carried out for repeated measures including tests of the simple main effect of cycle day on mood scores for each group individually and of contraceptive method for each stage individually (Winer, 1962). This was reported for each of the eleven cluster scores and the main significant findings are set out in Table 3.

TABLE III

Nowlis Mood Adjective Checklist

FACTOR	GROUP	EFFECT
Surgency	control	significantly lower scores relevant to other groups at premenstrual assessment. Day 26
Elation	control	a drop in feelings of elation in the premenstrual stage both as compared to feelings at other times of the cycle and in relation to other forms of contraception
Fatigue	Pill	less fatigue overall than both the I.U.D. group and control
Sadness	Pill	more feelings of sadness reported than I.U.D. group. No difference between I.U.D. and control
	control	stage of cycle has a significant effect, worst on Day 16
Social Affection	all groups	On Day 12 the scores are significantly higher than on Day 4 or Day 26. This was most evident in the control group
	control	significantly lower on Social Affection at premenstrual stage than at other times and as compared with other groups

The remaining factors Aggression, Anxiety, Concentration, Vigour, Confusion and Moodiness appeared unaffected by the contraceptive

method, the stage of the cycle and the possible interaction of these two variables. A measure of dispersion was calculated for each of the Nowlis factors to indicate the extent of the variation in mood throughout the menstrual cycle using different forms of contraception. A two way analysis of variance (Friedman, 1977) revealed the fluctuations to be greatest in the control group (p. .01). There was less cyclic variation in the Pill and I.U.D. groups than in the group of women using other forms of contraception.

CONCLUSIONS

The initial aim was to investigate the possible psychological affects of the contraceptive pill and it was hoped that women using I.U.D.s or relying upon other forms of contraception might act as controls. The results suggest that the Pill group experienced less fatigue than the other groups over the course of a single menstrual cycle. The Pill group did, however, report more sadness than the coil group or alternatively the coil group was less sad than both the Pill group and the controls. Other than for these meagre findings, there was little indication of any real differences in mood that might be directly associated with oral contraceptives. The problem is how to make sense of these apparently contradictory findings.

One possible explanation is in terms of physiological and psychological effects of taking the Pill which may be separate and quite different. The oral contraceptive may reduce subjective feelings of fatigue either as a result of reducing menstruation or by minimising normal hormonal variations. Certainly the profiles of the Pill group on each of the factors tended to stay fairly level from Day 4 to Day 26 while the controls fluctuated greatly, particularly during the pre-menstrual phase. On the other hand, feelings of concern with the Pill, worry about possible side-effects and ambivalence about deliverate contraceptive acts, i.e. swallowing the Pill daily, may all have contributed to the feelings of sadness. It was also interesting to note that all groups showed a reduction in social involvement and social interest around the time of menstruation. The literature would suggest that this reflects normal hormonal

variations during the menstrual cycle but this cannot be the case for the Pill group where normal hormonal levels have been modified by the synthetic steroids. A more likely explanation would seem to be along the lines suggested by Paige (1971). She goes so far as to account for all pre-menstrual symptoms in terms of taboos and anxieties surrounding menstruation. It would seem possible that the significant reduction in social orientation in the women in this study can be related to a desire to minimise contact with people at a time when a woman may consider herself to be unacceptable.

GENERAL OVERVIEW

The most important conclusion to be drawn from these two small scale studies is that there would appear to be little evidence to suggest that oral contraceptives are likely to produce a clinical depression in women who are seeking some form of reliable birth control technique. On the other hand it would seem that subjective feelings of lowered mood do occur but these cannot be directly related to the physiological effects of the oral contraceptive at the low dosages employed in these studies. Women who previously experienced symptoms of pre-menstural tension tend to be those who report side-effects of the Pill and they are also those women who tend to have doubts about the the advisability of contraception in any form. These studies suggest that psychological factors do play a significant part in alteration of mood. It appears that the use of contraceptives, particularly a contraceptive that requires regular conscious decision making on the part of the woman, serves to highlight anxieties that surround the issue of birth control, and menstruation. The lack of cyclic mood changes in the Pill and I.U.D. groups would suggest that the choice of a reliable contraceptive has more influence than possible physiological effects of the drugs involved.

These findings have distinct implications for sex therapists. Oral contraceptives of the low oestrogen type would seem to hold many practical advantages, assuming there are no physical contra-indications

for their use, and there is no evidence from these studies that the Pill produces clinical depression. There is some suggestion of lowered subjective mood for women using the Pill but this would seem to be related to psychological factors and hence should be amenable to effective counselling and information at the time of considering the use of oral forms of contraception.

REFERENCES

Culberg, J. (1972) **Mood changes and menstrual symptoms with different gestagen/oestrogen combinations.** *Acta Pcychiatrica Scandanavica*, Supplement : 236.

Dalton, K. (1954) **Discussion on the premenstrual syndrome.** *Proceedings Royal Society Medicine*, **48** : 339 – 346.

Friedman, M. (1937) Jnl. Amer. Stats. Assoc. **32**, 675 – 701 In *Non-parametric and Distribution Free Methods for the Social Sciences*. Marascuilo & McSweeney, Wadsworth Pub. Co. 1977.

Herbert, B. and Draper, K. (1971) **Oral contraceptives: depression and libido**

Johnson, A. and Nicol, G. (1971) *British Med. Journal*, **3** : 495—500.

Nowlis, V. (1965) **Research with mood adjective checklist. In** Tomkins **and Izard (eds.)** *Affect, Cognition and Personality*. New York: Springer. pp. 352 – 389.

Orchard, W. (1969) **Psychiatric aspects of oral contraceptives.** *Medical Journal. Australia*, 872 – 876

Parlee, M. (1973) The **premenstrual syndrome.** *Psych. Bull.*, **80** : 6. 454—465.

Rotter, J.B. (1966) **Generalized expectancies for internal versus external control of reinforcement.** *Psychol. Monog. Gen. & Applied*, **80** : 1 – 28.

Rotter, J.B. (1975) **Some problems and misconceptions related to the construct of internal vs. external control or reinforcement.** *Journal Consult. and Clin. Psychol.*, **43** : 56 – 67.

Royal College of General Practitioners (1974) *Oral Contraceptives and Health*. Pitman Whitefriars Press.

Snaith, R.P., Bridge, G.W.K. and Hamilton, M. (1976) The Leeds for the self-assessment of anxiety and depression. *Brit. J. Psychiat.*, **128**: 156—165.

Winer, B. (1962) *Statistical Principles in Experimental Design.* New York: Mcgraw Hill. pp. 302—311.

AUTHORS

A.R. Dabbs, Senior Lecturer in Clinical Psychology, University of Leeds, Director of Clinical Psychology Services, Leeds General Infirmary (Teaching Hospital).

J. Cramond, Lecturer in Behavioural Sciences, Leeds Polytechnic.

J. Hart, Clinical Psychologist, Cornwall Area Health Authority.

الموجز

التأثيرات الوجدانية لحبوب منع الحمل

تمثل الدراسة الأولى بحثا أوليا للعوامل التى قد تؤثر على استجابة السيدة لحبوب منع الحمل · وكانت الأدوات المستخدمة هى المقابلة وبطارية قياس نفسى مكونة من مقياس روتر لمركز التحـــكم ومقياس ليدز للتقـــدير الذاتى للاكتئاب والقلق (سنيث ، برجرز وهاملتون ١٩٦٥) وكان موضوع الدراسة عن السيدات المتقدمات للمركز لأول مرة ·

وقد صممت الدراسة الثانية للبحث بمزيد من التفصيل فى العـلاقات المحتملة بين استعمال الحبوب والتغيرات المزاجية الملازمة · وركزت الدراسة على السيدات المنتظمات فى استعمال الحبوب · وأخذت عينة ضابطة من السيدات اللواتى يستعملن وسائل أخرى لمنع الحمل · وقد أجريت قياسات متكررة على مدى دورة طمثية واحدة ·

وقد انتهت الدراسة الى أهم استنتاج يقول « أنه لا يوجد دليل كاف يوحى بأن استعمال حبوب منع الحمـــل يحتمل أن يؤدى الى الاكتئـــاب الاكلينيكى فى السيدات الساعيات الى طريقة مضمونة لضبط الحمل · وبالرغم من أن المشاعر الوجدانية المنخفضة تحدث بالفعل الا أنه لا يمكن ربط ذلك مباشرة بالتأثيرات الفسيولوجية للحبوب » ·

ABSTRAIT

Les effets Psychologiques des Contraceptives orales

La première partie de cette étude représente une investigation préliminaire des facteurs qui peuvent influencer la réaction des femmes aux contraceptives orales. Les instruments employés sont : un interview clinique, et une batterie de tests psychométriques. Cette dernière est composée de l'échelle de Rotter Locus contrôle et l'échelle de Leeds pour l'évaluation personnelle de la dépression et de l'anxiété éprouvées (Snaith, Bridge and Hamilton 1965). Les sujets examinés sont des femmes fréquentant la clinique pour la première fois.

La seconde partie de l'étude a été désignée pour examiner avec plus de détails la relation qui peut exister entre l'emploi des pilules et les changements de l'humeur qui peuvent arriver. L'étude a porté sur les femmes qui employent les pilules d'une façon régulière. Ce dernier échantillon a été comparé avec un contrôle groupe formé par des femmes qui utilisent d'autres moyens de contraception.

La plus importante conclusion est qu'il y a une très petite évidence qui suggère que les contraceptives orales peuvent produire une dépression clinique chez les femmes qui veulent adopter un moyen sûr de contraception. Des sentiments d'inhibition de l'humeur ne peuvent pas être directement attribués aux effets physiologiques des pilules.

Journal Abstracts

Primary and Secondary Process Thinking in the Context of Cerebral Hemispheric Specialization

by : JAMES T. MELAUGHLIN

Psychoanal. Q., **47** : 237-266, 1978.

The author accepts the concept of a division of cerebral hemispheric specialization and a relationship between the different formal modes of thinking attributed to the two hemispheres and those Freud assigned to primary and secondary processes. He proposes that there exist a lifelong capacity for the simultaneous registration and processing, in the two different cognitive hemispheric modes, of all that happens within and around us. Primary process can still be viewed as chronologically the earliest mode available for the organizing of the child's development, and secondary process can still be viewed as developing a little later and gradually assuming relative dominance over early primary process. However, the primary process capability can be viewed as continuing to develop and to coexist throughout life alongside the secondary, receiving a similar but not identical set of data and processing them in a mode that is as open to growth and change as is that of the secondary process. The author concludes that primary process may be viewed not as confined to archaic levels but as open to growth and development integration into the complete range of ego functions.

R. M.

The Application of EEG Sleep for the Differential Diagnosis of Affective Disorders

by : DAVID J. KUPFER, F. GORDON FOSTER, PATRICIA COBLE, RICHARD J. MCPARTLAND AND RICHARD F. ULRICH

Am. J. Psychiat., **135** : 69-74, 1978.

Investigation began in 1973 involving 95 patients, mean age 41.3±2.0 years, majority social class III and all admitted to the EEG