

ABSTRACT

Objective: To assess the effects of hypnotherapy on the first and second stages of labour in a large group of pregnant women.

Design: A semi-prospective case controlled study in which women attending antenatal clinics were invited to undergo hypnotherapy.

Subjects: One hundred twenty-six primigravid women with 300 age-matched controls, and 136 parous women having their second baby with 300 age-matched controls. Only women who had spontaneous deliveries were included.

Setting: Aberdare District Maternity Unit, Mid Glamorgan, Wales.

Intervention: Six sessions of hypnotherapy given by a trained medical hypnotherapist during pregnancy.

Outcome measures: Analgesic requirements, duration of first and second stages of labour.

Results: The mean lengths of the first stage of labour in the primigravid women was 6.4 h after hypnosis and 9.3 h in the control group ($P < 0.0001$); the mean lengths of the second stage were 37 min and 50 min respectively ($P < 0.001$). In the parous women the corresponding values were 5.3 h and 6.2 h ($P < 0.01$); and 24 and 22 min (ns). The use of analgesic agents was significantly reduced ($P < 0.001$) in both hypnotised groups compared with their controls.

Conclusion: In addition to demonstrating the benefits of hypnotherapy, the study gives some insight into the relative proportions of mechanical and psychological components involved in the longer duration of labour in primigravid women.

Practical applications and theoretical considerations of hypnosis in normal labour



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It is a widely held belief, supported by large scale studies (Friedman 1967)¹, that women having their first baby have a longer, more difficult and more painful labour than those having subsequent babies. Although this is usually attributed to a combination of relative uterine inefficiency and increased soft tissue tension, the explanation remains controversial.

Since the work of Grantly Dick-Read in the 1930s and 1940s (Dick-Read 1944)² drawing attention to the importance of emotional factors, several authors have attempted to modify these using hypnotherapeutic techniques (Abramson & Heron 1950³; Michael 1952⁴; Clark 1956⁵; Winklestein 1958⁶; August 1960⁷; Davidson 1962⁸; Tom 1960⁹; Schibly & Aanonsen 1966¹⁰; Freeman et al, 1986¹¹; Brann & Guzvica 1987)¹². Although results were generally encouraging, there has been little interest in this topic over the past 30 years.

This study demonstrates that in addition to important practical benefits, the use of simple hypnotic techniques could be used to give new insight into the psychological aspects of labour.



Hypnotherapy may be time consuming but this study shows it to be considerably more effective than traditional relaxation classes

Subjects and methods

¹ Friedman E. A. (1967) *Normal Labor. In Labor, Clinical Evaluation and Management, New York: Appleton Century Crofts*

² Dick-Read G. (1944) *Childbirth Without Fear. New York: Harper & Brothers*

³ Abramson M. & Heron W. T. (1950) *An Objective Study of Hypnosis in Childbirth. American J Obs Gynecol 59, 1069-1074.*

⁴ Michael A. M. (1952) *Hypnosis in Childbirth. Brit Med J I, 734-737.*

⁵ Clark R. N. (1956) *A Training Method for Childbirth Using Hypnosis. American J Obs Gynecol 72, 1302-1304.*

⁶ Winklestein L. B. (1958) *Routine Hypnosis for Obstetrical Delivery. American J Obs Gynecol 76, 152-160*

⁷ August R. V. (1960) *Obstetric Hypnoanaesthesia. American J Obs Gynecol 79, 1131-1138.*

⁸ Davidson J. A. (1962) *An Assessment of the Value of Hypnosis in Pregnancy and Labour. Brit Med J II, 951-953.*

⁹ Tom K. S. (1960) *Hypnosis in Obstetrics and Gynaecology. Obstet Gynecol 16, 222-226.*

The study was carried out over a period of five years, from 1984 to 1989, at the Aberdare General Hospital Maternity Unit, Mid Glamorgan, a satellite district maternity unit run by three consultants used for approximately 800 low risk deliveries per annum in a population predominantly of social classes 3, 4 and 5.

There is no routine epidural analgesia and women needing caesarean sections and those with multiple pregnancies or other predictable obstetric complications are transferred to the Prince Charles Hospital, Merthyr Tydfil (Merthyr General Hospital until 1990).

The caesarean section rate remained steady at between 11 per cent and 12 per cent over the five year period, and the pre-eclampsia rate remained at 7 per cent. Ventouse or forceps assisted deliveries averaged 6 per cent of all women, both in the unit as a whole and in the women initially in the hypnosis group.

Five hundred women of all parities, or approximately 10 per cent of those attending the antenatal clinics during this period, expressed an interest in the hypnotherapy service.

Study group atypical

However, there were two factors that made this group atypical compared with the clinic attenders as a whole.

Firstly, there was a very high drop-out rate through lack of interest or inability to co-operate fully.

Secondly, the average age of those completing the course was approximately four years greater than unselected women of the same parity.

This reduced the proportion of single women in the study, most of whom were under 20. These figures have been averaged for the duration of the

study, since the proportion of single women attending the antenatal clinic increased markedly over the five years (Table 1).

The overall smoking prevalence was 35 per cent among the married women and 49 per cent among the single women, but information on smoking recorded in the antenatal clinic notes was not considered reliable by the midwifery staff. Data on perineal trauma (episiotomy or tears requiring suturing) were recorded, together with maternal height and birth weight (Table 1).

Although it is normal practice to subject any new therapy to a double blind randomised controlled trial, this is clearly not possible in a study of hypnotherapy. The subject must not only know she is being hypnotised, but must be prepared to co-operate fully and it was therefore decided that inviting women to volunteer was the only practical way of selecting a workable study group. We also considered that, as this was a preliminary study, the analysis of the effects of hypnotherapy on labour could only be made if the latter was as normal as possible; thus, all women who needed therapeutic intervention (caesarean section, ventouse or forceps) were excluded.

For analysis of the data the women in the study were divided into two groups:

(i) Women having their first baby (primigravid group).

(ii) Women having their second baby (parous group).

Other parities were excluded.

Each of these groups had a control group chosen by selecting, for each woman in the study who achieved a successful delivery without assistance or intervention, the next two or three women in the labour ward register of the same parity and age (± 2 years) who were also delivered without assistance or intervention.

Background to study

¹⁰ Schibly W. J. & Aanonsen G. A. (1966) *Hypnosis—Practical in Obstetrics? Medical Times* 94, 340–343.

¹¹ Freeman R. M., Macauley A. J., Eve L. & Chamberlain G. V. P. (1986) *Randomised Trial of Self-Hypnosis for Analgesia in Labour. Brit Med J* 292, 657–658.

¹² Brann L. R. & Guzvica S. A. (1987) *Comparison of Hypnosis with Conventional Relaxation for Antenatal and Intrapartum Use: A feasibility study in general practice. J Roy Coll Gen Pract* 37, 437–440.

The hypnotherapy was carried out by Dr Mary Jenkins who was not present at the labour. The data were recorded in the routine labour ward notes by the midwifery staff on duty who were not aware of the study. The women were also unaware that their performance was being monitored and recorded. The data were analysed at the end of the study. The study involved 126 primigravid and 136 parous women, both groups having control groups of 300 women each. There were no exclusions on the grounds of previous obstetric history or performance, and there was no rejection or selection by the medical hypnotherapist of any woman for any other reason, medical or non-medical. Ethical approval was not thought necessary at the time the study was initiated.

Although every effort was made to exclude bias, doubts must remain that the women volunteering for hypnotherapy were different in some way from those who did not. It was not possible to stratify for all possible confounding variables but, as Table I shows, the two groups were well matched for all the important physical characteristics.

The only unexpected finding was that in both groups the hypnotised women had heavier babies than their respective controls. There was no obvious reason for this, as the mean maternal heights were the same as the clinic means, but we could not stratify adequately for smoking habits and this may have been relevant. Social class was also difficult to define, as Aberdare is an ex-mining area of relatively high unemployment and the pregnant woman may often have been better educated than her husband.

Following the request for hypnotherapy, each woman received six individual half hour sessions with the medical hypnotherapist. The methods used were classical techniques taught by the British Society of Medical and Dental Hypnosis for auto-relaxation and auto-analgesia. The subject was encouraged to learn and practise the techniques for auto-hypnosis during labour when the therapist would not be present.

Approximately one third of the subjects dropped out after the first session due to lack of interest, but of those who successfully completed the course several have been able to re-use the technique for subsequent pregnancies.

| Physical Characteristics | Primigravid women | | Parous women | |
|--------------------------|-------------------|-----------|--------------|-----------|
| | Hypnotised | Controls | Hypnotised | Controls |
| <i>n</i> | 126 | 300 | 136 | 300 |
| Mean age (years) | 26.5 | 26.2 | 29.7 | 28.8 |
| SD | 4.5 | 4.3 | 4.6 | 4.4 |
| Range | 17–41 | 18–38 | 20–41 | 21–41 |
| Mean height (cm) | 159.5 | 159.0 | 158.8 | 159.0 |
| SD | 4.1 | 5.0 | 4.4 | 5.0 |
| Range | 145–70 | 145–72 | 147–70 | 145–72 |
| Single | 15 (12%) | 50 (17%) | 2 (2%) | 15 (5%) |
| Birth weight | 3390 * | 3159 * | 3472 † | 3296 † |
| SD (g) | 417 | 475 | 380 | 310 |
| Range | 2420–4426 | 1750–4200 | 2660–4210 | 2390–4060 |
| Episiotomy | 45 (33%) | 99 (35%) | 19 (14%) | 48 (16%) |
| Tears | 51 (39%) | 117 (41%) | 65 (48%) | 132 (44%) |
| No trauma | 30 (28%) | 84 (24%) | 50 (37%) | 120 (40%) |

Table 1. Obstetric data for the two study groups and their controls.

* $t=3.71$, $P<0.001$; † $t=2.79$, $P<0.001$; SD = standard deviation and Student's t test was used.

Two outcome measurements were used: the analgesic requirements and the duration of first and second stages of labour which were recorded routinely in the labour ward register by the midwifery staff on duty. Nitrous oxide/oxygen was self-administered. Further analgesia (100 mg pethidine, repeated as necessary) was given by the midwife according to her assessment of the analgesic requirement at the time. Oxytocin infusions were given in approximately 12 per cent. of control and 11 per cent. of hypnotised primigravid women and in 6 per cent of control and 7 per cent of hypnotised

parous women for induction of labour when the pregnancy was considered to be two weeks post term, or when labour was taking excessively long to become established. The onset of labour was taken as the start of regular contractions.

The χ^2 test was used to compare the proportion of women who required no analgesia and the proportion who did not require pethidine in the hypnotised and control groups. The durations of the first and second stages of labour in the hypnotised and control groups were compared using Student's *t* test.

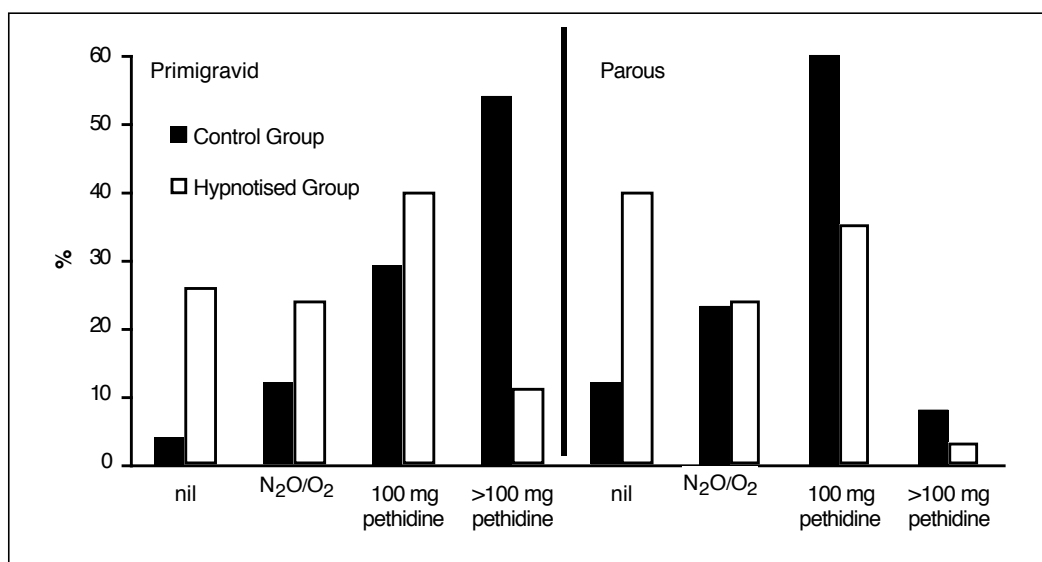


Figure 1. Analgesic requirements for the two study groups and their controls (126 primigravid, 136 parous women and two control groups of 300 each).

Results

Analgesic requirements

The comparative analgesic requirements for all groups are shown in Figure 1. All forms of analgesia were used by fewer women in the hypnotised groups compared with controls.

Significantly more hypnotised primigravid women required no analgesia compared with controls (33/126 versus 13/300 respectively; $\chi^2 = 42$, $P < 0.001$). Also, significantly more hypnotised primigravid women did not require pethidine compared with controls (66/126 versus 49/300 respectively; $\chi^2 = 42$, $P < 0.001$).

The analgesic requirement differences in the parous groups were less marked, and both these groups required less analgesia than the equivalent groups of primigravid women.

Significantly more hypnotised parous women required no analgesia compared with controls (50/136 versus 33/300 respectively; $\chi^2 = 32$, $P < 0.001$).

Also, significantly more hypnotised parous women did not require pethidine compared with controls (80/136 versus 99/300 respectively; $\chi^2 = 15$, $P < 0.001$).

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British Journal of Obstetrics and Gynaecology

March 1993, Vol. 100, pp. 221-226

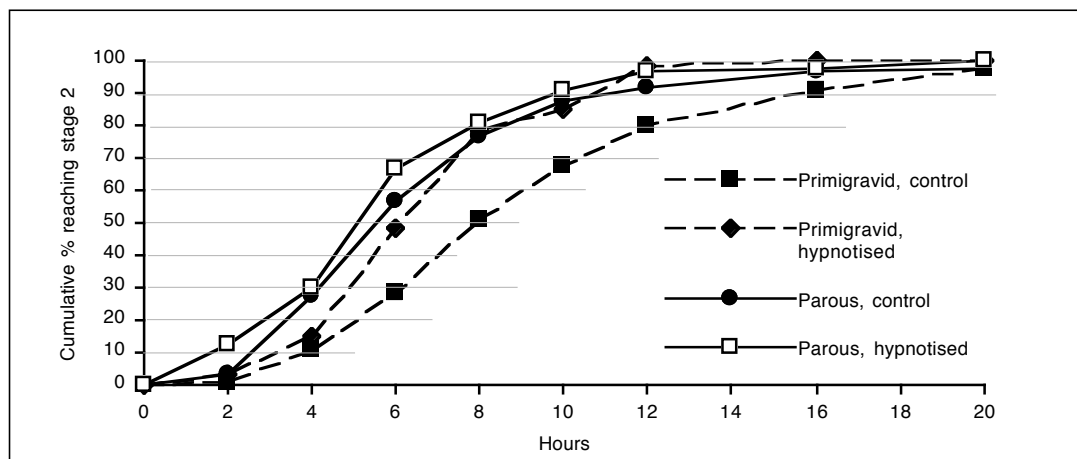


Figure 2. Cumulative graph of duration of first stage of labour for primigravidae, parous women and their respective control groups.

Duration of first stage of labour

Figure 2 shows cumulative percentage data on times taken to complete the first stage of labour (latent and active phases combined) for both primigravid and parous groups.

There was a highly significant difference between the performance of the controls and hypnotised primigravid women, the latter having labour times similar to the parous control group.

Mean, standard deviation (SD) and median data are shown in Table 2, together with the figures for normal labour published by Friedman (1967) for comparison.

There was a small difference between the two parous groups, with a mean shortening of labour of about 14 per cent – statistically but not clinically significant.

Duration of second stage of labour

Figure 3 shows the cumulative percentage data for the second stage of labour for the four groups. There were marked differences between primigravid and parous women and, whereas hypnosis was associated with a 25 per cent shorter mean second stage in the primigravid women, there was no difference between the two parous groups.

In spite of the improvement, the mean duration of the second stage in the hypnotised primigravids remained longer than the parous groups, although by only one hour. The percentage delivered was the same.

The results presented in Table 2 show that the control group results are similar to published normal data, but that hypnotherapy has been associated with almost complete elimination of the difference in duration of the first stage of labour normally seen between primigravidae and parous women. By contrast, although there was an improvement, the performance of primigravid women in the second stage did not reach that of the parous group except in the percentage of deliveries completed in one hour.

| Stage | Primigravid women | | | Parous women | | |
|---------------|-------------------|---------|----------|--------------|---------|----------|
| | Hypnotised | Control | Friedman | Hypnotised | Control | Friedman |
| First (h) | | | | | | |
| Mean | 6.4*** | 9.3*** | 10.5 | 5.3* | 6.2* | 7.5 |
| SD | 3.2 | 4.2 | 5.5 | 3.2 | 3.3 | 5.6 |
| Median | 6.0 | 8.3 | 10.3 | 5.1 | 5.6 | 6.3 |
| Second (mins) | | | | | | |
| Mean | 37** | 50** | 46 | 22† | 24† | 14 |
| SD | 19 | 24 | 35 | 20 | 18 | 20 |
| Median | 36 | 43 | 30 | 18 | 18 | 12 |

* t=30, p<0.01; ** t=3.74, p<0.001; *** t=11.4, p<0.0001; † t=1 (not significant)

Table 2. Comparative labour data for the two study groups, controls and published 'ideal' performances. Friedman (1967) refers to published delivery times. Values derived from Student's t test.

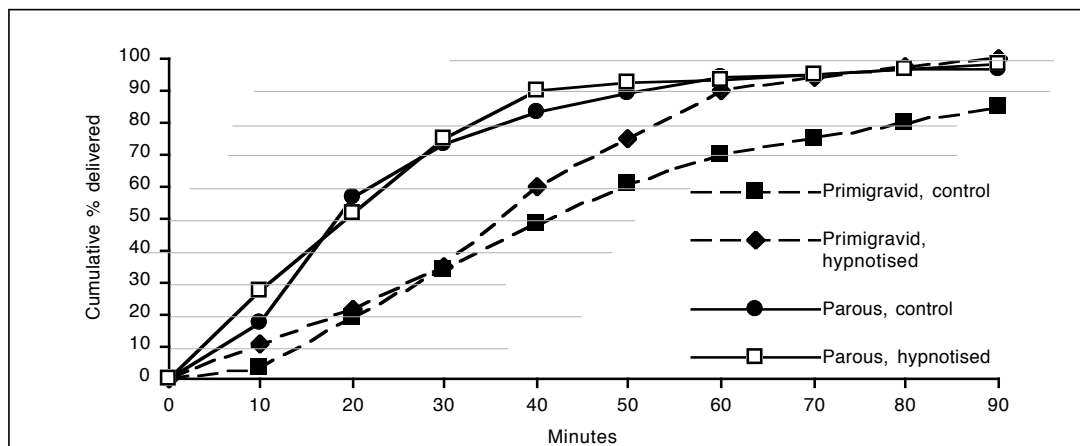


Figure 3. Cumulative graph of duration of second stage of labour for the two study groups and their controls.

Discussion

¹³ Hilgard E. R. & Hilgard J. R. (1975) *Hypnotic Responsiveness. Hypnosis in the Relief of Pain.* Kaufman, Los Altos, California.

¹⁴ Venn J. (1987) *The Stanford Hypnotic Clinical Scale and a Group of Obstetrical Patients.* *American J Clinical Hypnosis* 30, 66-70.

¹⁵ Moya F. & James L. S. (1960) *Medical Hypnosis For Obstetrics.* *JAMA* 174, 2026-2032.

Acknowledgements:

The authors would like to thank the consultants, nursing staff and clerical officers of **Aberdare District Maternity Unit and Prince Charles Hospital, Merthyr Tydfil**, for their help and co-operation in the collection of the data in this study.

There is little doubt that the main effect of hypnotherapy is to induce a high level of relaxation in a tense and emotionally charged atmosphere. In this respect it is the ultimate placebo.

There was considerable interest in the use of this technique in the 1950s but the results of studies were conflicting and, in addition, the overall view was that hypnosis was likely to be more trouble than it was worth.

Comparative analysis of these studies reveals the probable cause of this disagreement. Some, such as those reported by Clark (1956) and Schibley & Aanonsen (1966) were mainly anecdotal, being carried out by individual enthusiastic obstetricians without enough scientific data to enable the value of hypnosis to be analysed. The controlled studies carried out by Abramson (1950) and August (1960) also found hypnotherapy to be beneficial but these studies were relatively unstructured and thus difficult to evaluate.

Of the other controlled studies, some involved random allocation of women to hypnosis or control groups, or used consecutive women attending the clinic. These studies generally found hypnotherapy to be of little benefit (Winklestein 1958; Tom 1960; Freeman et al. 1986). Tom (1960), while finding that hypnosis was useful, considered it too time consuming to be worthwhile. On the other hand those studies whose design was similar to this one, in which pregnant women were told that a hypnosis service was available if they so wished, reported favourable results (Michael 1952; Davidson 1962; Brann & Guzvica 1987).

The reason for these contradictions may be

found in the review by Hilgard & Hilgard (1975)¹³ who pointed out that the range of individual susceptibility to hypnosis in an unselected population varied from nil to extreme, and could be scored on a 1-12 scale (The Stanford Hypnotic Clinical Scale).

Within randomly selected groups many will be predictably resistant to hypnosis, so disappointing results should not be surprising, whereas a volunteer group would be more likely to contain a high proportion of motivated and susceptible people and so better results should be expected.

Surprisingly, Venn (1987)¹⁴, in a small study, found that motivation made no difference to hypnosis susceptibility and a group of pregnant women scored the same as a group of volunteer college students; but the skill of the individual hypnotherapist must be taken into account in any of these studies.

Hilgard and Hilgard (1975) suggested that assessing the usefulness of hypnosis is only valid if the subject's individual susceptibility to this is known, and that perception of pain is a more useful measure than duration of labour or analgesic requirements. The latter are, however, of more practical importance to both pregnant women and obstetricians and have the advantage that statistical analysis is possible.

In practice hypnotherapy is undoubtedly time consuming, but it is considerably more effective than relaxation classes which, both in the opinion of our subjects and in the study of Brann & Guzvica (1987), achieve little.

It is also probable that the baby benefits from reduced exposure to drugs and shorter second stage times (Moya & James 1960)¹⁵ with greater maternal satisfaction.

Although this paper confirms the studies of 30 years ago by demonstrating the practical benefits of hypnotherapy in reduced analgesic requirement and shortening of labour, the large numbers and defined groups also allow these two benefits to be analysed separately. Since hypnotherapy is a purely psychological technique, it is possible to speculate about the role of emotional factors in labour.

Inspection of the data shows that the reduction of analgesic requirement applies to a greater or lesser extent to all women in labour; on the other hand the changes in first and second stage labour duration are highly specific.

Analgesic requirement must be to some extent a voluntary decision on the part of the woman – who may decide to give auto-hypnosis a try before resorting to nitrous oxide/oxygen – but the performance during labour has no obvious voluntary component. Yet this study, as did earlier ones, seems to demonstrate that a non-therapeutic technique can have a profound effect on a process over which an individual has apparently no voluntary control.

It is important to emphasise that these results have been obtained from normal, unassisted labour in volunteer subjects treated by an experienced, medically qualified therapist and, although accurately matched to control groups, they are clearly not necessarily relevant to pregnancies in general, particularly when there has been mechanical, surgical or medical intervention.

Nevertheless, the object of the argument is to establish a principle: if the duration of labour, especially in primigravid women, is due to a mixture of mechanical and emotional factors, it may be possible substantially to eliminate the latter with hypnotherapy with consequent improvement in performance.

The results show that for primigravid women the duration of the first stage of labour was apparently shortened in the hypnotised group to become almost indistinguishable from that of the parous controls. There was a small improvement in the parous study group, with reduction of the mean duration but no change in the percentage completing in 8 h.

All other things being equal it would seem that, in this idealised group, once emotional factors have been eliminated by hypnotherapy, primigravid women may be capable of performing as well in the first stage of labour as parous women. This conclusion brings the argument full circle, since this is what Dick-Read was proposing 50 years ago.

On the other hand the data for the second stage are different, with the performance of all groups being either relatively or completely unaffected by hypnotherapy.

Although there is a significant improvement in the performance of primigravid women, it does not approach the delivery times of the parous women. This suggests that in the second stage the differences in performance are likely to be mechanical rather than psychological.

This study is the first of its kind for several decades and, having shown both practical benefits and the possibilities of a new approach to the analysis of the physiology of labour, it clearly needs further studies with a wider range of variables being considered prospectively, with more efficient hypnotherapy in terms of time spent with each pregnant woman. Such studies are already under consideration.

Hypnotherapy seems to have several useful roles in obstetrics: as well as resulting in a reduction in analgesic requirements and shorter labour in primigravid women it may also have the potential to be a research tool.

*Simple
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