

# Patient Perception of Involvement in Medical Care During Labor And Delivery

Ayelet Berg PhD, Dan Yuval PhD, Michal Ivancovsky MBA, Sima Zalcborg MSc, Avigail Dubani and Jochanan Benbassat MD

JDC-Brookdale Institute, Health Policy Research Program, Jerusalem, Israel

**Key words:** doctor-patient relations, communication skills, patients' preferences, labor and delivery

## Abstract

**Background:** Patients who feel involved in their treatment have better outcomes than those who do not.

**Objective:** To identify determinants of perceived patient involvement in obstetric care.

**Methods:** A retrospective study was undertaken in 1,452 (83%) of 1,750 women sampled in November 1995 from maternity wards of 14 general hospitals in Israel. A postal and telephone survey using a self-administered questionnaire included the following variables: hospital (identity number), patients' age, self-reported complications, previous deliveries, education, ethnicity, and number of obstetric interventions performed and/or considered. The main outcome measured was the reported involvement in decisions for obstetric interventions.

**Results:** Reported full involvement varied from 72% for epidural analgesia to 13% for forceps/vacuum extraction. Factor analysis identified two dimensions of perceived involvement: one for "routine" interventions (enema, monitoring, IV line and episiotomy), which are performed in Israel mostly by midwives, and another for "special" interventions (forceps/vacuum extraction, epidural or other analgesia, and cesarian section) performed by physicians. Logistic regression identified hospitals, younger age, number of interventions, and Arab ethnicity as correlates of a perceived non-involvement in decisions for "special" interventions.

**Conclusions:** Clinical setting, age and ethnicity affected patient perception of involvement in decisions for obstetric interventions.

*IMAJ 2001;3:352-356*

There is evidence that the quality of physician-patient communication affects patient outcomes [1]. The results of controlled trials have indicated that irrespective of the role patients had wanted to play in decisions about their treatment, those who *felt* involved reported less discomfort, a greater sense of control over their illness, more satisfaction with care, and higher degrees of improvement than did "passive" patients [2]. Patients who were encouraged to ask questions, elicit alternative options

and state preferences about treatment had better health outcomes than patients who were not [3-5]. It has also been reported that when physicians reached an agreement with patients [6], or involved patients by providing information [7] or offering a choice of treatment [8], they achieved better treatment outcomes than when they did not. The validity of the *patient-reported* involvement in decisions about their care as a measure of physicians' behavior is supported by the correlation between physicians' and patients' reports of participatory decision-making style [8]. It may be concluded that patients' perceived involvement in care reflects physician behavior and affects health outcomes [1].

Patients' involvement in decisions about their care is related not only to physicians' behavior [9] but also to patient characteristics [10]. Patients who felt non-involved were more likely to be males, older than 75 or younger than 30, less educated, members of a minority, and to rate their health as poor [10]. This finding is consistent with a previous observation that physician behavior (attention, courtesy, information giving, empathy, interruptions, and time of interaction) varied with patients' gender, age, ethnicity and appearance [11]. However, most studies of patient involvement in clinical decisions were carried out in ambulatory settings. Their conclusions may not be generalizable to emergency settings, which differ in perceived urgency of the medical problem, patient anxiety, duration of the relationship between patient and care provider, and in patient autonomy in the choice of care-provider. These differences may affect both care provider behavior and patient expectations.

The objectives of this study were to: a) explore factors affecting patient perceptions of involvement in decisions for obstetric interventions, and b) examine the relationship between involvement and satisfaction with care. We chose maternity wards as a setting for our study because in Israel labor and delivery may be viewed as an example of a semi-urgent event: expecting mothers may choose a hospital, but usually not specific care providers. This setting provided an opportunity to study patient perception of involvement in conditions approximating a random assignment among care providers and to avoid the confounding effect of long-term patient relationship with a pre-selected care provider.

## Methods

### Study population and sampling

The study population consisted of 5,296 women who were discharged between 1 and 30 November 1995 from the maternity wards of 14 of the 32 public acute care hospitals in Israel. Of these 5,296 women, we systematically sampled 125 from each hospital, or a total of 1,750. About 6 weeks after discharge, they were mailed a questionnaire and, when necessary, were reminded by phone to mail their responses to the investigators. A total of 1,452 (83%) responded. The remaining women were not located (7%), had difficulties in language/communication (1%), refused to respond (4%) or did not mail back their responses (5%).

### Instrument

We used a structured questionnaire in the three most commonly spoken languages in Israel: Hebrew, Arabic and Russian. The Arabic and Russian versions were translated back into Hebrew, and inconsistencies between the original and back-translated versions were thoroughly explored and resolved.

The independent variables were hospitals (identity number), patient's age (less/equal or more than 35 years), education (less/equal or more than 12 grades), ethnic group (Arab or others), past deliveries (yes or no), self-reported complications (yes or no), and number of obstetric interventions that the patient reported were performed or that the patient was aware they were considered but not performed.

The dependent variables were global satisfaction with care, and the degree of perceived involvement in the decisions for a list of obstetric interventions. Global satisfaction with care was assessed by patients' responses to the question: "Overall, how satisfied are you from your experience during labor and delivery in hospital?" Responses ranged from 1 (very dissatisfied) to 5 (very satisfied) and the results were arbitrarily dichotomized into satisfied (4 and 5) and not satisfied (1,2,3). Perceived involvement in clinical decisions was constructed from the responses to the question: "Did you feel that the staff involved you or considered your opinion prior to performing the following interventions: enema, monitoring, IV line, episiotomy, forceps/vacuum extraction, epidural or other analgesia, cesarian section and induction of labor?" When the patient thought the intervention was either considered or performed, responses were 1 (I was not involved), 2 (I was somewhat involved) or 3 (I was fully involved). When the patient reported that the intervention was neither performed nor considered, response was coded as "not applicable."

To determine whether the various obstetric interventions could be combined into a smaller number of categories, we conducted a factor analysis. Varimax rotation of the responses on the perceived involvement in care identified two factors: one consisting of involvement in the decision for enema, monitoring, IV line and episiotomy (Cronbach alpha = 0.82) and one for forceps/vacuum extraction, epidural or other analgesia, and cesarian section (Cronbach alpha = 0.60). "Induction of labor" had an equal loading (0.5) for both factors and was excluded

from the analyses. The first factor appeared to capture "routine interventions" and those commonly performed in Israel by midwives. Episiotomy is mostly performed by midwives and suturing by physicians only. The second factor included "special interventions" ordered or performed by physicians for specific indications. These factors are consistent also with the need for a specific consent: in Israel, women are asked to sign a general consent for care prior to their admission to maternity wards. An additional written consent is mandatory prior to epidural or other analgesia and cesarian section, but not for episiotomy and forceps/vacuum extraction.

### Analysis

For each patient, a mean involvement score was computed separately for "routine" and "special" interventions. The results were dichotomized into "non-involved" (mean score: less or equal to 2) and "involved" (mean score: greater than 2).

Preliminary bivariate analyses revealed significant relations between perceived involvement in care and patient's age, education, ethnicity, past deliveries, self-reported complications, hospitals and number of obstetric interventions that were performed and/or considered (data not shown), and these variables were entered into the multivariate analyses. Logistic regressions were used to estimate the independent predictive value of these covariates on the proportion of women who were "involved" in the routine and special interventions. Hospitals were entered as dummy variables.

Logistic regression was also used to define the independent effect of a patient's perception of involvement on satisfaction with care. The goodness-of-fit procedure was used to estimate the overall predictive power of the independent variables in the models for perceived involvement in care and satisfaction with care.

## Results

### Obstetric interventions

The frequencies of the various obstetric interventions performed and/or considered in 1,452 respondents to this survey are listed in the first two columns of Table 1. The correlation between the number of "routine" and "special" interventions reported to have been performed or considered by individual patients was 0.796 ( $P = 0.000$ ).

### Perceived involvement in clinical decisions

Perceived involvement was highest for epidural analgesia, with 72% of the respondents reporting that they were fully involved in the decision for this intervention; between 34% and 47% reported that they were fully involved in the decision for IV line, episiotomy or monitoring; and 65% and 54% reported that they were fully involved in the decision for other modalities of analgesia and cesarean section, respectively [Table 1]. There was a marked variability among hospitals in the proportions of women who felt non-involved in the decision-making process. The variability was most marked for cesarean section, epidural analgesia and forceps/vacuum extraction (i.e., "special" inter-

**Table 1.** Perceived participation in decisions about obstetric interventions (%) in 1,452 women surveyed after delivery in November 1995

Intervention	n	Participation in clinical decision making (%)		
		Complete	Partial	None (range of hospital averages)
<b>Factor I*</b>				
Enema	860	55	12	33 (19–46)
Monitoring	1,134	47	12	41 (30–53)
IV line	1,046	42	11	48 (37–59)
Episiotomy	723	34	12	53 (36–66)
<b>Factor II*</b>				
Epidural analgesia	594	72	7	20 (5–50)
Other analgesics	708	65	12	23 (8–41)
Forceps/vacuum extraction	164	13	13	74 (22–100)
Cesarean section	274	54	8	38 (19–65)

\* Factors identified by Varimax rotation

**Table 2.** Logistic regression of the predictive value of the independent variables for perceived involvement\* in decision making for “routine” obstetric interventions (enema, monitoring, IV line and episiotomy) in 1,340 responders with available data

Variable	Entered as	Beta	Odds ratio	P
Hospital ID number	Dummy variables**			
1		-.46	.63	.136
2		-.21	.81	.468
3		-.33	.72	.290
4		-.70	.50	.029
5		-.69	.50	.029
6		-.05	.95	.864
7		.07	1.07	.819
8		-.11	.90	.733
9		-.37	.69	.238
10		-.83	.44	.010
11		-.95	.39	.004
12		.09	1.09	.779
13		-.73	.48	.035
Education	Higher	-.71	.49	.000
Ethnicity	Arab	-.69	.50	.000
Age	Below 35	-.24	.79	.120
Complications	Yes	-.42	.66	.005
Past deliveries	No	.09	1.09	.088
Interventions considered and/or performed	n	-.05	.95	.424
Constant			2.75	.022

\* See Methods section for a definition of the variable “involved in clinical decisions”

\*\* Odds ratio relative to hospital # 14

ventions), and less marked for the “routine” interventions [Table 1].

Only 47% of the 1,382 respondents with available data were classified as “involved” (as defined in the Methods section) in

**Table 3.** Logistic regression of the predictive value of the independent variables for perceived involvement\* in “special” obstetric interventions (epidural or other analgesia, vacuum/forceps, or cesarean delivery) in 1,106 responders with available data

Variable	Entered as	Beta	Odds ratio	P
Hospital ID number	Dummy variables**			
1		.35	1.41	.405
2		-.01	.99	.969
3		-.66	.52	.0869
4		.35	1.42	.391
5		.67	1.95	.108
6		-.39	.68	.324
7		.26	1.30	.495
8		.26	1.30	.531
9		-.80	.45	.047
10		-.88	.41	.028
11		-.27	.76	.508
12		.87	2.39	.036
13		-.09	.91	.839
Education	Higher	.26	1.30	.103
Ethnicity	Arabic	-1.03	.36	.000
Age	Below 35	-.49	.61	.017
Complications	Yes	-.10	.90	.577
Past deliveries	No	-.09	.91	.157
Interventions considered or performed	n	-.79	.45	.000
Constant			2.60	.000

\* See Methods section for a definition of the variable “involved in clinical decisions”

\*\* Odds ratio relative to hospital # 14

decisions on “routine” care (enema, monitoring, IV line and episiotomy), while as many as 68% of the 1,141 respondents with available data reported involvement in decisions on “special” obstetric interventions (forceps/vacuum extraction, epidural or other analgesia, and cesarean section).

Table 2 presents the results of a logistic regression analysis of the predictive value of the independent variables for involvement in “routine” obstetric interventions (dependent variable). Hospitals, higher education, Arab ethnicity and complications were significantly and independently inversely related to a perceived involvement in routine obstetric interventions. The model improved the likelihood ratio of “feeling involved” by 5%. A logistic regression of the same covariates [Table 3] indicated that certain hospitals, younger age, number of considered or performed interventions and Arab ethnicity were independently inversely related to a perceived involvement in clinical decision making regarding “special” obstetric interventions. The model improved the likelihood ratio by 17%.

**Perceived involvement in clinical decisions and global satisfaction with care**

For the vast majority of obstetric interventions, absence of self-reported complications and perceived involvement in decisions

**Table 4.** Logistic regression of the predictive value of the independent variables, including perceived participation in decisions regarding “routine” and “special” obstetric interventions for global satisfaction with care

Variable	Entered as	Beta	Odds ratio	P
Hospital ID*	*Dummy variables			
1		.16	1.18	.665
2		.22	1.25	.524
3		-.59	.55	.110
4		.28	1.32	.463
5		.90	2.46	.023
6		.31	1.36	.411
7		.38	1.46	.312
8		.32	1.38	.419
9		-.31	.73	.411
10		.40	1.50	.329
11		1.14	3.12	.011
12		.80	2.23	.043
13		.29	1.34	.489
Involvement in “routine” decision making	Yes	.45	1.58	.003
Involvement in “special” decision making	Yes	.56	1.75	.002
Complications	Yes	-.51	.60	.003
Ethnicity	Arab	-.55	.58	.006
Past deliveries	No	.16	1.18	.011
Education	Higher	-.20	.82	.210
Age	Below 35	.28	1.33	.146

\* “Routine” obstetric interventions include enema, monitoring, IV line, induction of labor and episiotomy. “Special” obstetric interventions include epidural or other analgesia, vacuum/forceps or cesarean delivery.

\*\* Odds ratio relative to hospital # 14.

were associated with increased satisfaction with care (data not shown). The same trend was observed when the analysis was carried out separately for Hebrew- and Arabic-speaking women, for women younger and older than 35, and for women with elementary and higher education (data not shown). Logistic regression [Table 4] indicated that perceived involvement in “routine” and “special” obstetric decisions, absence of self-reported complications, and first delivery were independent predictors of satisfaction with care. Hospitals, ethnicity and education were not independent significant predictors of satisfaction with care. This model improved the likelihood ratio by 13%.

## Discussion

The present study has several limitations. First, patients responded about 6 weeks after being discharged from the maternity wards and responses may have been biased by poor recall [12]. Second, even assuming a precise translation of the questionnaire, we cannot exclude the possibility that the responses to the Hebrew and Arabic versions of the instrument were biased by cultural differences, similar to those reported in studies comparing English-speaking and Spanish-speaking

patients’ perceptions of the interpersonal aspects of care [13]. Finally, the selection of hospitals was not random, but rather conditional on their willingness to participate in the survey. Still, we believe our study is unique in its focus on the patient perception of involvement in obstetric care and in its attempt to quantify the degree to which this perception was predicted by patient characteristics and the practice habits in specific hospitals.

We found that as many as 20% of maternity patients who had epidural analgesia and 38% of those who had cesarean deliveries reported that they were not involved in decision making even though they had presumably signed an informed consent form for the intervention. This finding is consistent with the reported poor recall of informed consent for epidural analgesia in labor [12]. It is also consistent with the proportion of women (30%) who felt they were not involved in decisions about non-elective cesarean delivery in the UK [14], but not with the mere 8% reported in the USA [15]. These findings suggest that informed consent given during the intrapartum period achieves its objective only partially, and that it may not be perceived by all patients as a meaningful interaction with their physician [16].

Our findings are consistent with others that a perceived involvement in decisions was related to a higher satisfaction with care [17,18]. However, most of the variance in global satisfaction with care remains unexplained by the independent variables of our model. We confirmed also previous observations in outpatient settings that the characteristics of care providers [9] (in our case, the participating hospitals) and patients [10] are significant and independent correlates of patients’ perception of involvement in care. In our population, perceived involvement in both “routine” and “special” interventions was independently related to hospitals, and was significantly lower among Arab women. Younger age and higher number of performed or considered interventions decreased the likelihood of feeling involved in “special” interventions. On the other hand, the likelihood of feeling involved in “routine” interventions was lower among those with higher education and those who reported complications. We have no explanation for the differences in predictors for perceived involvement in “routine” and “special” obstetric care. They may reflect differences between doctors’ and midwives’ norms of communication with patients, or different patient expectations from doctors and midwives.

Although statistically significant, the overall predictive power of the independent variables for perceived involvement in clinical decisions was limited. Most of the variance in perceived involvement remains unexplained by our model, which included patient characteristics (self-reported complications, age, education, past deliveries and ethnicity), medical interventions and hospitals. It seems that the main determinants of a patient’s perception of involvement in care remain unknown. Most probably, this perception is determined by the practice habits, of individual caregivers [10], the perceived urgency of the clinical situation at hand, and the expectations of

individual patients. Further research is needed to determine the factors that influence patients' perceptions of involvement in care, and to define the types of patients, illnesses, interventions, caregivers' practice habits and settings in which a perception of participation in clinical decision making is most likely to be realized. We conclude that clinical setting, age and ethnicity affected patient perception of involvement in decisions for obstetric interventions.

---

## References

1. Stewart MA. Effective physician-patient communication and health outcomes: a review. *Can Med Assoc J* 1995;152:1423–33.
2. Brody DS, Miller SM, Lerman CE, Smith DG, Caputo GC. Patient perception of involvement in medical care: relationship to illness attitudes and outcomes. *J Gen Intern Med* 1989;4:506–11.
3. Greenfield S, Kaplan S, Ware JE. Expanding patient involvement in care. *Ann Intern Med* 1985;102:520–8.
4. Thompson SC, Nanni C, Schwankovsky L. Patient-oriented interventions to improve communication in a medical office visit. *Health Psychol* 1990;9:390–404.
5. Grienfield S, Kaplan SH, Ware JE. Patients' participation in medical care – effect on blood sugar control and quality of life in diabetes. *J Gen Intern Med* 1988;3:448–57.
6. Starfield B, Wray C, Hess K, Gross R, Birk PS, D'Lugoff BC. The influence of patient-practitioner agreement on outcome of care. *Am J Public Health* 1981;71:127–31.
7. Rainey LC. Effects of preparatory patient education for radiation oncology patients. *Cancer* 1985;56:1056–61.
8. Fallowfield LJ, Hall A, Maguire GP, Baum M. Psychological outcomes of different treatment policies in women with early breast cancer outside a clinical trial. *Br Med J* 1990;301:575–80.
9. Kaplan SH, Grienfield S, Gandek B, Rogers WH, Ware JE. Characteristics of physicians with participatory decision-making styles. *Ann Intern Med* 1996;124:497–504.
10. Hooper EM, Comstock LM, Goodwin JM, Goodwin JS. Patient characteristics that influence physician behavior. *Med Care* 1982;20:630–8.
11. Kaplan SH, Gandek B, Greenfield S, Rogers WH, Ware JE Jr. Patient and visit characteristics related to physicians' participatory decision-making styles. *Med Care* 1995 33:1176–87.
12. Swan HD, Borshoff DC. Informed consent – recall of risk information following epidural analgesia in labour. *Anaesth Intens Care* 1994;22:139–41.
13. Hayes RP, Baker DW. Methodological problems in comparing English-speaking and Spanish-speaking patients' satisfaction with interpersonal aspects of care. *Med Care* 1998;36:230–6.
14. Mould TA, Chong S, Spencer JA, Gallivan S. Women's involvement with the decision preceding their caesarean section and their degree of satisfaction. *Br J Obstet Gynaecol* 1996;103:1074–7.
15. Lescale KB, Inglis SR, Eddleman KA, Peeper EQ, Chervenak FA, McCullough LB. Conflicts between physicians and patients in non-elective cesarean delivery: incidence and the adequacy of informed consent. *Am J Perinatol* 1996;13:171–6.
16. Gutheil TG, Bursztajn H, Brodsky A. Malpractice prevention through sharing of uncertainty. *N Engl J Med* 1984;311:49–51.
17. Seguin L, Therrien R, Champagne F, Larouche D. The components of women's satisfaction with maternity care. *Birth* 1989;16:109–13.
18. Fleissig A. Are women given enough information by staff during labor and delivery? *Midwifery* 1993;9:70–5.

---

**Correspondence:** Dr. A. Berg, JDC Brookdale Institute, P.O.Box 13087, Jerusalem 91130, Israel. Phone: (972-2) 655-7391, Fax: (972-2) 561-2391, email: AyeletB@jdc.org.il