Factor that Influence on Ultra-Orthodox Jewish Mothers’ Service Satisfaction with Obstetric Care in Israeli Public Hospitals

Dr. Iris Gertner Moryossef
Author Affiliation:
Hadassah Academic College, Jerusalem, Israel
Correspondence to: Dr. Iris Gertner Moryossef
irisge@hac.ac.il

Dr. Keren Mazuz - Corresponding Author
Author Affiliation
Hadassah Academic College, Jerusalem, Israel
kerenma@hac.ac.il

Abstract
The Ultra-Orthodox sector is a uniquely conservative and closed community within Israeli society, which makes up 8-11% of the population of Israel. The Ultra-Orthodox live in separate neighborhoods that constitute closed cultural quarters with little interaction with the non-orthodox society. Within these neighborhoods, they maintain their traditional lifestyle, which adheres to strict, Torah-based Jewish law. Observance of Jewish laws and customs is closely monitored and access to the internet and the general media is limited, keeping the exposure to undesired contents at the minimum.
Religious law observance includes modest dress codes, complete separation between male and female that begins in early childhood, and strong family values, including marrying young and aspiring to form a big, close-knit family unified around the traditions of the community. The men in the Ultra-Orthodox
society dedicate themselves to full-time religious studies in specialized institutions (the Kollel), while the women oversee the family income, children's education and all domestic matters. Whereas 61% of Ultra-Orthodox Jewish women are employed, only 52% of the men have a job, while the other men dedicate their time to studying the Tora. On average, an Ultra-Orthodox woman gives birth for the first time at the age of 19, and the overall fertility rate among this population is three times that of the secular population (8.5 children versus 2.9).

Since 99% of childbirths take place in hospitals (the general homebirth rate in Israel is smaller than 1%) and due to the generous grant (3,000 dollars) that hospitals receive from the Health Ministry for each delivery, hospitals make persistent efforts to encourage orthodox mothers to use their maternity service and thus are interested in providing obstetric care that will satisfy them. As the Ultra-Orthodox community assigns special importance to childbirth and maintains a high fertility rate, researchers were motivated to examine the factors that affect the satisfaction of Ultra-Orthodox Jewish Mothers (UOJM) with their childbirth experience, including with the caregivers and the delivery rooms. The underlying assumption is that the mother's satisfaction is essential to her loyalty when choosing hospitals in her future labors. We also examined whether the mother's satisfaction correlated with sociodemographic factors, such as the mother's age, level of education and number of previous deliveries. We wanted to study whether older, more educated mothers who have experienced previous childbirths will be less anxious and more confident during labor, thus more satisfied with obstetric care. This is in comparison to younger and less experienced mothers, who may be more concerned and anxious, thus have higher expectations of the staff and the labor experience, leading to decreased satisfaction.

This study was composed of two phases: in the first phase we conducted explanatory research, in which we used focus groups and asked 36 UOJM about the major factors that affected their obstetric satisfaction. Based on this phase we identified 17 factors that influence mothers' satisfaction. In the second phase we distributed questionnaires to 161 UOJM asking them to declare their satisfaction of each factor using Likert scale.
The questionnaires were based on the former questionnaires from the scholar to evaluate obstetrics' evaluation among mothers after childbirth. We conducted the survey in April-October 2018 in infant healthcare centers, which provide healthcare services to the mother and her infant (ages 0-2 years old) like vaccination a weight measurement.

**Results:**
Results show three dimensions of factors that have significant influence on UOJM's satisfaction. The first is the *Interpersonal* dimension, which refers to the attitude of service givers and their interaction with the mother; the second dimension is the *Physical surroundings*, including sanitation and privacy during childbirth; and the third dimension is the *Technical dimension*, which includes emergency and anesthesia equipment.

The mothers were highly satisfied with all three dimensions, but the interpersonal dimension was the strongest predictor of satisfaction (17.63**), compared to the Physical and O dimension (14.23**, 13.36**). On a scale of 1-5, the mothers were highly satisfied with the following factors: 1) privacy during delivery (4.49); 2) professional conduct of the staff; and 3) waiting time for personnel (4.17, 4.20).

In contrast, the mothers were less satisfied with the following factors: 1) consulting with the mother; and 2) giving her enough information (these factors relate to the interpersonal dimension) (2.79 and 2.81 respectively).

No correlation was found between satisfaction and sociodemographic variables or previous childbirths.

**Conclusions**
The results point to the importance of Interpersonal, Physical and Technical dimensions in UOJM's satisfaction with obstetric care. The most influential factors were found to be professionalism of the staff, waiting time and privacy during the procedure. Improving the staff's assistances and accessibility allowing more privacy to the mother and reducing wait time can improve satisfaction and
confidence among UOJM and increase their loyalty to a specific hospital in future deliveries.

**Key words:** Obstetric care satisfaction, Interpersonal dimension, Technical dimension, Physical environment.

**Background**

Ultra-Orthodox Jews in Israel (who made up 8%-11% of the Israeli population in 2018) live in closed neighborhoods and adhere to traditions and customs based on Jewish law (the Torah and subsequent writings). They avoid accessing the internet and wear modest clothes. Ultra-Orthodox children acquire the knowledge and motivation to continue the strictest enforcement of Jewish law. Men enter a regime of full-time study of religious Jewish texts at 18 years old ([1];[2]). While the men spend their days studying, the women take charge of the house, including income and children's education. The high fertility rate among this population (three times that of the non-Orthodox) is based on Genesis (1:28: "Be fruitful and multiply and replenish the earth and subdue it" ([3];[4]).

Within the Ultra-Orthodox society, having a baby is not only a physical and biological experience but also a fulfillment of a spiritual purpose, since the core experience in this world, in their view, is bringing a soul into the world ([5];[6]).

Motivated by the high grant from the Ministry of Health for each delivery (3,000 dollars), Israeli hospitals make extreme efforts to bring in more Orthodox women. Their efforts to encourage women to use their services throughout their deliveries include Kosher food, separation between men and women, a synagogue on premises, or taking care for the young children .. ([2];[4]).

Prior studies that focused on healthcare service used questionnaires to evaluate service satisfaction. These studies have pointed to the main parameters influencing mothers' satisfaction with obstetric care ([7]); [8]; [9]). The first parameter is the interpersonal relationships with the service givers in the maternity room, which refers to their support, professional training, courtesy and empathy toward the mother and her companion. The second parameter is the Physical surroundings, which includes the attendance and accessibility of the service giver in the room, sanitation of the environment, a private space given to the mother, and the team - organization. The third parameter determining the level of satisfaction included Technical factors, such as medical, anesthetic or
emergency equipment used during the delivery. All three parameters are important and affect mothers’ satisfaction with the service, although not to the same extent. ([10]; [11]). This study’s aim is to determine and rank the main factors that influence the satisfaction of Ultra-Orthodox Jewish Mothers (UOJM) during childbirth.

Methodology

The Aim of the study

The aim of this study is to evaluate the cultural factors that affect UOJM’s satisfaction level when receiving childbirth services in Israeli hospitals. These factors will then be classified into dimensions, and the

The study area and study design

The study population is UOJM who had vaginal deliveries (no caesarean or other operations) in public hospitals in Israel within a period of twelve months prior to the study (which took place in August 2017). The study was conducted in four cities with large Ultra-Orthodox populations: Jerusalem, Bnei Brak, Netania and Ashdod. We identified and approached mothers in playgrounds adjacent to infant healthcare centers located in Orthodox neighborhoods. These healthcare centers, known as Tippat Halav, are public clinics that provide overall infant healthcare, including weight measurement, vaccination and nutrition guidance.

In each city we approached about 40-50 UOJM. We had face to face interviews with them in the explanatory stage as well as in the second phase, during which we delivered the questionnaires. The study instrument was self-administered questionnaires, designed, validated and pretested for the purpose of a large cross-sectional study of women’s satisfaction with perinatal care. The closed ended questionnaires were given to UOJM by religious college students after receiving intensive training by the authors. The students’ background in Orthodoxy helped them communicate with the mothers. They had four days of training, each three hours long. During the training the purpose of the study was explained, the academic goals of the study were emphasized and the interaction with the participants was simulated.

The participating mothers had to fill in the questionnaires by themselves. The students were guided to make sure the mother understood that the questionnaire is for academic purposes. They gave the questionnaire to the mother and waited
while she completed it. We used 5 students for each of the four cities, 20 students all together. Satisfaction with one of the aspects was defined as the proportion of mothers who had chosen a mark of 4 or 5 with all the variables under this aspect of care.

**Data collection, data instrument**

The journey of the study was conducted using mixed methodologies in two phases as described in Table 1:

![Diagram showing Phase 1: Qualitative face to face interview and Phase 2: Quantitative questionnaire]

**Table 1: The research phases**

| Step                  | Purpose                                                                 | Number      |
|-----------------------|-------------------------------------------------------------------------|-------------|
| Qualitative interviews| Identifying main factors that have significant influence on mothers’ evaluation of obstetric care service. | 36 UJOM     |
| Quantitative questionnaire | Ranking the influence of the significant factors on the mothers’ evaluation. | 161 UJOM    |
| Quantitative questionnaire | Classifying the factors into three separate dimensions (Physical, Personal and Technical dimensions). | 161 UJOM    |
| Quantitative questionnaire | Identifying correlations between factors and sociodemographic variables. | 161 UJOM    |
| Quantitative questionnaire | Determining predictors of mothers’ satisfaction. | 161 UJOM    |

**Explanatory phase:** At this first phase we aimed to identify the main factors that influence mothers' satisfaction with childbirth services. We used face-to-face interviews with UJOM, asking them open questions such as "what is important to you?" We also asked the mothers about their prior expectations, and what aspects of the Technical procedures (equipment, anaesthesia and alternative medicine), the Physical surrounding (sanitation of the facilities, privacy, team work and accessibility of service) and interpersonal service (professionalism, waiting time
or empathy by the midwives) they were pleased with. Based on phase one, we found 17 factors that significantly influence mothers' satisfaction (good internal consistency Cronbach’s $\alpha = 0.741$).

In the second phase we used close ended questionnaires to evaluate the satisfaction with childbirth services in relation to each of the 17 factors. The questionnaire used in this phase was adopted from preliminary valid questionnaires [13]; [14]; [15]. The first draft of the English questionnaire was translated into Hebrew by independent translators and then back to English to check for consistency.

The questionnaires were given to each mother after explaining the academic purpose of the study and ensuring its anonymity (we also made sure she gave birth within the last 12 months). The mothers signed a form of consent. The questionnaires were filled out by the mother and handed back to the students. The mother was asked to rate each factor using a 5-point Likert scale (1 –very dissatisfied, 2 –dissatisfied, 3 –neutral, 4 –satisfied, and 5 –very satisfied).

Overall, we approached more the 190 UOJM and received 161 responses the academic and anonymous study, make sure she had her baby within the last 12 months.

**Data analysis**

Data analysis was performed using SPSS v.18.0 (IBM Corp., Armonk, NY, USA). The association between UOJM satisfaction and each component was examined by Varimax rotation, and stepwise multiple regressions were performed to identify the significant predictors of the three satisfaction dimensions. Using Spearman's rank correlation coefficient, we measured the relationship between sociodemographic variables and satisfaction with each item, and stepwise logistic regression was used to determine the main predictors of satisfaction. An adjusted odds ratio was used to determine the level of association between selected variables, and variables having $*p<0.05$ were retained for the model.

**Ethical considerations**

The study proposal was approved by the Internal Ethical Review Board of Hadassah Academic College. Informed oral consent was obtained from each study participant. Confidentially was assured by making the questionnaire anonymous.


**Results**

**Dimensions of mother's satisfaction:**

Using an explanatory study among 36 mothers we interviewed them in related the main factors influence their satisfaction in the delivery room.

The mothers mentioned that interpersonal interaction as well as the surrounding environment and technical equipment and procedure are the factors influencing their satisfaction. The main factors (17 all together) were collected to subgroups and dimensions using factor analysis as shown below.

Using factor analysis, we categorized the items into the following three domains as follows, each having high internal consistency (see Table 2): the first dimension is mothers' satisfaction with the technical proceeding dimension (four items, Cronbach's $\alpha = .67$), the second dimension is mothers' satisfaction with the physical environment dimension (four items Cronbach's $\alpha = .93$) and third dimension relates to interpersonal aspects dimension of service giver (nine items, Cronbach's $\alpha = .74$ is a significant factor explained 45% of the frequency).

For each item, the mothers marked their satisfaction using a 5-point Likert scale, (1-very dissatisfied, 2-dissatisfied, 3-neutral, 4-satisfied, and 5-very satisfied).

**Table 2:** Factor analysis influence the mother’s satisfaction

| Dimension and items | Cronbach's $\alpha$ |
|---------------------|---------------------|


| Dimension                                      | Items                                                                 | Score |
|-----------------------------------------------|-----------------------------------------------------------------------|-------|
| [1] Technical dimension                      | 1. Process and medical facilities in the room (drugs, equipment, etc.) | 0.67  |
|                                               | 2. Equipment for emergency                                           |       |
|                                               | 3. Availability of anesthesia equipment                              |       |
|                                               | 4. Alternative medicine and therapy during delivery                  |       |
| [2] Physical environment                     | 5. Sanitary facilities (water, toilets, bathrooms) in the room        | 0.93  |
|                                               | 6. Privacy maintained by the health staff during the care             |       |
|                                               | 7. Organizational teamwork                                          |       |
|                                               | 8. Attendance and accessibility of the service giver in the room     |       |
| [3] Interpersonal dimension of care           | 9. Professional training, literacy, the nurses and midwives           | 0.74  |
|                                               | 10. Waiting time and responsiveness of the personnel                 |       |
|                                               | 11. Listening and attending to the mother's wishes                    |       |
|                                               | 12. The quality of the service and treatment                         |       |
|                                               | 13. Kindness and attitude of the personnel to the mother as an        |       |
|                                               |   individual                                                         |       |
|                                               | 14. Kindness & courtesy of the personnel to mother's accompanying    |       |
|                                               |   person                                                             |       |
|                                               | 15. Consulting with the mother before interfering                     |       |
|                                               | 16. Information was given to the mother during procedure              |       |
|                                               | 17. Empathy and consideration of the nurses and midwives              |       |

Demographic characteristics of the sample:

Table 3: Socio-demographic characteristics of the UOJM
Table no 3 shows the representative distribution of the sample related to age, income, education and previous childbirths.

**Satisfaction in general items and dimensions**

Mothers’ satisfaction in general was high (3.67) regardless of age, income, education, and previous birth (see Table 4). The most satisfied factors were privacy during delivery (4.49), waiting time (4.17) and professionalism and literacy of the nurses and midwives (4.20). Dissatisfaction was found in consultation with the mother (2.79); Information that is given to the mother (2.81) and alternative medicine treatment (mothers’ satisfaction was only 1.52). Other items, such as work organization, sanitary facilities, kindness and empathy towards the mother and her companion received a median score (3.52-3.88)

**Table 4:** Mean and Std. Deviation of the item's satisfaction

| Variables                      | Satisfaction | Std. Deviation |
|--------------------------------|--------------|----------------|
| **Technical dimension**        |              |                |
| Process and medical facilities in the room (drugs, equipment, etc.) | 3.67         | 1.98           |
| Category                                           | Score | Standard Deviation |
|----------------------------------------------------|-------|--------------------|
| Equipment of emergency                            | 3.65  | 1.86               |
| Availability of anesthesia equipment               | 3.74  | 1.90               |
| Alternative medicine and therapy during delivery  | 1.22  | 1.02               |

**Physical dimension**

| Sanitary facilities (water, toilets, bathrooms) in the room | 3.67 | 1.22               |
| Privacy maintained by the health staff during care         | 4.49 | 3.51               |
| Organizational, teamwork                                  | 3.45 | 1.32               |
| Attendance and accessibility of the service giver in the room | 3.67 | 1.22               |

**Interpersonal dimension of care**

| Professional training, literacy of the nurses and midwives | 4.70 | 1.04               |
| Waiting time and responsiveness of the personnel          | 4.47 | 2.53               |
| Listening and attending to the mother's wishes             | 2.20 | 1.12               |
| The quality of the service and treatment                   | 3.77 | 1.18               |
| Kindness and attitude of the personnel to the mother as an individual | 3.84 | 1.25               |
| Kindness & courtesy of the personnel to mother's accompanying person | 3.52 | 1.78               |
| Consulting with the mother before interfering              | 2.29 | 1.23               |
| Information was given to the mother during procedure       | 2.21 | 1.45               |
| Empathy and consideration of the nurses and midwives       | 3.88 | 1.33               |
**Mean satisfaction in general**

|                      | Mean | SD  |
|----------------------|------|-----|
| General              | 3.67 | 1.35|

Correlation between mother's satisfaction with demographic variables:

To find a significant correlation between sociodemographic variables, we conducted Spearman analysis (see Table 5). The results indicate no significant correlation. Satisfaction with all three dimensions was not related to the UOJMs' demographic characteristics. There was no relation to age, income, education or previous childbirths. The same satisfaction rank was given to interpersonal dimension, physical surroundings and technical dimension.

To find any correlation between items' dimensions and demographic variables, we used a Spearman correlation (see Table 6). Results show that there is no significant correlation between the UOJMs' satisfaction and demographic variables or former childbirths.

### Table 5: Correlation between dimensions' satisfaction and demographic variables

| Dimension and items                                      | Age at birth | Education | Income | Previous childbirth |
|----------------------------------------------------------|--------------|-----------|--------|--------------------|
| **Technical dimension**                                  |              |           |        |                    |
| Process and medical facilities in the room (drugs, equipment, etc.) | .02          | .18       | -.06   | -.01               |
| Equipment for emergency                                  | -.16         | .04       | -.22   | -.20               |
| Availability of anesthesia equipment                    | -02          | .22       | .01    | -.20               |
| Alternative medicine and therapy during delivery | .02 | .04 | .06 | -.06 |
|-------------------------------------------------|-----|-----|-----|------|
| **Physical environment**                         |     |     |     |      |
| Sanitary facilities (water, toilets, bathrooms) in the room | .01 | .11 | -.01 | -.07 |
| Privacy maintained by the health staff during the care | .17 | .17 | .12 | .17 |
| Organizational, teamwork                         | .05 | .07 | -.07 | .03 |
| Attendance and accessibility of the service- giver in the room | -.01 | .09 | -.08 | -.12 |
| **Interpersonal dimension of care**              |     |     |     |      |
| Professional training, literacy the nurses and midwives | .01 | .23 | .11 | .05 |
| Waiting time and responsiveness of the personnel | -.11 | -.04 | -.03 | -.05 |
| Listening and attending to the mother's wishes   | .09 | .11 | -.01 | -.04 |
| The quality of the service and treatment         | .03 | .13 | .04 | -.12 |
| Kindness and attitude of the personnel to the mother as an individual | .06 | .05 | .02 | .14 |
| Kindness and attitude of the personnel to the mother as an individual | .11 | .11 | .03 | -.02 |
| Consulting with the mother before interfering    | -.04 | .20 | -.02 | -.01 |
Information was given to the mother during procedure | -.22 | .19 | .02 | -.11
Empathy and consideration of the nurses and midwives | -.04 | .20 | -.06 | .12

*p<0.05 **P<0.01

**Table 6**: Correlation between items' satisfaction and demographic variables

| Dimension and items | Age in birth | Education | Income | Previous child birth |
|---------------------|--------------|-----------|--------|----------------------|
| Technical dimension | -.07         | -.05      | .11    | -.14                 |
| Physical environment| .01          | -.09      | .07    | .08                  |
| Interpersonal dimension | -.15      | .19       | .19    | -.11                 |
| Mean satisfaction   | -.07         | -.04      | .18    | -.07                 |

*p<0.05 **P<0.01

**Predictors of mother's satisfaction:**
**Linear regression including service's dimensions:**
Linear multiple regression was conducted to define significant dimensions predicting mother's satisfaction (see Table 7). The regression explained 91% of the satisfaction variance (F (3,147) =146.62, p<0.001)
All three aspects had high correlation to mother's average satisfaction, but the interpersonal dimension had the high score (β=.57).

**Table 7**: Linear multiple regression of dimensions' satisfaction
Linear regression with all variables:

Linear regression between UOJM mothers’ satisfaction and all variables (service dimensions and demographic variables):

The regression analysis was found to be significant \([F (7,117) =98.17, \ p<0.001]\) and explained 93% of the satisfaction' s variance. As seen in Table 8, the demographic variables (age, income, education, and previous childbirths) were not found to be significant predictors of the UOJMs' satisfaction. \((\beta= -.05)\).

As seen in the results, interpersonal dimension is the main predictor influence religious UOJM's satisfaction\((\beta=.47)\). Based on linear regression, service's technical and physical surrounding predict mother's satisfaction but less than personal interaction. \((\beta =.27, \ \beta=.21)\)

Table 8: Linear multiple regression of factors influences mothers’ satisfaction
| Dimensions                      | t      | B     | Std. Error | Beta |
|--------------------------------|--------|-------|------------|------|
| Interpersonal dimension        | 23.81**| .62   | .02        | .47  |
| Physical environment           | 11.78**| .37   | .03        | .27  |
| Technical dimension            | 9.74** | .35   | .02        | .21  |
| Age when giving birth          | 1.42   | .06   | .04        | .05  |
| Education                      | -1.09  | -.04  | .04        | -.05 |
| Income                         | -.67   | -.02  | .03        | -.02 |
| Previous childbirths           | 1.33   | .05   | .03        | .04  |

**Discussion**

*In general:* The high childbirth rate among UOJM in Israel (more than six children per family compared to a national average of 2.9 children) and the fact that more than 99% of deliveries take place in public hospitals make this an exciting and motivating research, as it studies the factors that influence UOJM's satisfaction during childbirth in public hospitals. The Ultra-Orthodox Jewish community holds a traditional and conservative lifestyle with codes of modesty and resistance to the internet and social networks, relying on word of mouth communication ([3]; [6]). Understanding the central factors that play a role in UOJM's satisfaction or dissatisfaction with their childbirth experience and the
ability to predict their obstetrics service satisfaction may encourage maternity departments in public hospitals to improve their service and fulfill the mothers' needs during this important event.

**Dimensions of satisfaction:** The factors that influence UOJM's satisfaction can be divided into three dimensions: the *Interpersonal* dimension contains factors relating to the service giver and his or her interaction with the mother; the *Physical* surrounding relates to sanitation, the organization and accessibility of the medical staff, and privacy given to the mother; and the *Technical* dimension relates to anesthesia, emergency and alternative equipment during the procedure. All three dimensions were found to be as important in obstetric care as they are in other high involvement medical services ([16] [17]; [18]). Studies conducted in Ethiopia, Sri Lanka, Peru and Serbia ([19]; [20]; [21]; [22]) show that only the dimension of personal interaction predicts mothers' satisfaction; however, in this study, all three dimensions predict significant mothers' satisfaction. This difference may relate to the high level of the Israeli healthcare system (ranked eighth globally in 2015 in terms of life expectancy by Bloomberg rank [24]) that cause the mother to expect high standards of the room sanitation, alternative medicine, the attitude of the service giver or the information provided to her [23]. [15].

**The interpersonal dimension:** within this dimension, the high level of satisfaction derived from the professionalism of the staff and the waiting time (satisfaction rate was higher than 4.4). This result is related to the concerns and involvement of women in labor. They need to feel secure during the procedure, and professional staff and accessibility can relieve their uncertainty. In addition, laboring women want to take active part in the process. When they are not routinely closely informed and consulted with, they feel dissatisfied with the service (2.21, 2.29).

These results are comparable to other studies ([24];[25] ;[26]) which emphasize the mother's need to be informed and consulted during the procedure. In western countries such as Australia or the Netherlands, ([8]; [27]) the personal, caregiver-based service was an important factor in explaining the high percentage of home childbirths (more than 33%).
The Physical surrounding dimension: All items in the Physical dimension (room sanitation, mother's privacy, accessibility and organization of the medical staff) received high satisfaction rate. Our findings indicate that UOJM are more sensitive to the issue of privacy than to other factors, likely due to the modesty requirement of their community. The Ultra-Orthodox woman in labor needs a quiet environment and a closed door, which can be opened only upon knocking, or she might feel exposed and insecure. [3]; [6])

The Technical dimension: although birthing women use conventional medical care, they need to have access to alternative obstetric care, which is highly popular in Israel ([28]; [29]). When this is not the case, they express dissatisfaction (mean satisfaction 1.22).

The fact that UOJM do not access the internet and avoid social network communication makes them more dependent on the professional knowledge of the staff as well as on the surrounding and Technical equipment. The Israeli Ultra-Orthodox mother wishes to be informed and consulted during labor, needs to be offered alternative therapy in addition to the conventional methods and wants to be treated as an individual.

Sociodemographic variables: UOJM's satisfaction with all three dimensions was the same regardless of sociodemographic variables such as age, education or previous childbirths. These findings contrast with those of other studies ([30]; [31]; [32]; [33]), which have shown that low income and highly educated mothers will be less satisfied with maternity care.

Research limitations
The research has several limitations that arise mainly from the type of population examined. The first limitation concerns the small number of participants, resulting from the difficulty in interviewing UOJM. In addition, the research was limited to a small number of healthcare facilities. The participants all gave birth in one of five public hospitals, in which more than 98% of UOJM births are performed. This concentration of hospitals limits the ability to compare satisfaction between diverse hospitals or between public and private facilities. In
terms of the medical procedure, this study sample examined only vaginal deliveries and excluded deliveries with additional risks (such as a caesarean operation), which may impact the research results and the parameters of mothers' satisfaction.

Conclusions

Although satisfaction with childbirth services is multidimensional, the most significant predictors were found to be privacy, waiting time and professional conduct of the staff. It is important that the hospital staff pay attention to positive and ongoing communication with the patient throughout the birth process. This includes informing the mother about what is happening to her and to the fetus and listening to her suggestions even if this is her first childbirth. This could reduce the level of anxiety the mother is experiencing.

The study's findings are compatible with those of other studies ([34]; [35]; [36]), showing that high involvement of healthcare services and hospitals should reduce patients' 'fears and uncertainty when receiving healthcare services. They also point to the importance of the quality of service in increasing patients' satisfaction. The fact that hospitals in Israel receive high compensation from the Health Ministry for every childbirth makes it a priority service for them and encourages them to improve mothers' satisfaction, for example by arranging private birthing rooms and adding alternative medical treatments to the labor procedure.

Another way to increase mother's satisfaction is to highlight the personal interaction between her and the staff. Hospitals should understand the importance of sharing information with the mother during labor, treat her as a partner, consult with her and inform her. Such an attitude may increase the mother's certainty about the service and increase her loyalty to the hospital in her subsequent deliveries. Our recommendation is to continue to explore the parameters accounting for satisfaction amongst UOJM so that hospitals are able to provide an outstanding service. Asking each mother before and during childbirth about her special needs and desires may help adjust the service as private and customizes service, thereby increasing the mother's satisfaction and her loyalty to the hospital in future childbirths.
Declarations

Ethics approval and consent to participate:
The ethical approval was granted by the Internal ethical review board of Hadassah Academic College in March 2018. The manuscript does not include any individual person's data; hence consent to publish is not applicable. The participants confirm their consent by written consent to publish.

Consent to publish
The manuscript does not include any individual person's data; hence consent to publish is not applicable.

Availability of data and materials:
The data sets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.
The real database supporting the conclusions of this article is available in the Israeli: https://main.knesset.gov.il/pages/default.aspx The data supporting the Ultra-Orthodox Jews Haredim in Israel population are available in the Central Breuer of Statistic of Israel https://www.cbs.gov.il/he/Pages/default.aspx

Competing interests
The authors declare that they have no competing interests.
Funding:
This project was funded by the Hadassah Academic College. The funder had no role in the study design, data collection and analysis or preparation of the manuscript.

Authors' contributions
IGM designed the study and drafted the manuscript, KM helped design the study, assisted with writing the paper, and, and performed statistical analysis, NS assisted with advice, interpreting results and the discussion. All authors read and approved the final manuscript.

Acknowledgments:
We would like to extend our deepest gratitude to the Hadassah Academic College in Jerusalem for financing this research. Our appreciation goes to the data collectors and supervisors who helped us in monitoring and supervising the data collection process. Our special thanks also go to heads of the Hadassah Academic College.

Abbreviations
UOJM - ultra-orthodox Jewish Mother

References:
1. Engelsman, Shimrit Prins; HUSS, Ephrat; CWIKEL, Julie. How Ultra-Orthodox (Haredi) Israeli Women Cope with Normative and Difficult Pregnancy and Childbirth Experiences. Nashim: A Journal of Jewish Women's Studies & Gender Issues, 2018, 33: 136-157.
2. Beck, S. E., & Goldberg, E. K. (1996). Jewish beliefs, values, and practices: Implications for culturally sensitive nursing care. Advanced Practice Nursing Quarterly, 2, 15-22. https://europepmc.org/article/med/9447069

3. Lev-On, Azi; SHAHAR, Rivka Neriya-Ben. A forum of their own: Views about the Internet among ultra-Orthodox Jewish women who browse designated closed fora. First Monday, 2011, 16. https://ojphi.org/ojs/index.php/fm/article/view/3228

4. Witztum, E. (2002). Cross-cultural encounters between care providers: Rabbis’ referral letters to a psychiatric clinic in Israel. Social Science and Medicine, 55, 1309–1323. https://www.sciencedirect.com/science/article/abs/pii/S0277953601002787

5. (CALLISTER, Lynn Clark; SEMENIC, Sonia; FOSTER, Joyce Cameron. Cultural and spiritual meanings of childbirth: Orthodox Jewish and Mormon women. Journal of Holistic Nursing, 1999, 17.3: 280-295 https://journals.sagepub.com/doi/abs/10.1177/089801019901700305

6. Research Malach, G., Cohen, D., & H. Zicherman: A Master Plan for Ultra-Orthodox Employment in Israel. 2016 https://en.idi.org.il/media/4670/taasukat_karedim_web.pdf

7. Christiaens, W., Van De Velde, S., & P. Bracke: Pregnant Women's Fear of Childbirth in Midwife-and Obstetrician-led Care in Belgium and the Netherlands: Test of the Medicalization Hypothesis. Women & Health.2011 (51); 220-239 https://www.tandfonline.com/doi/abs/10.1080/03630242.2011.560999

8. Chatzoglou, P., Chatzoudes, D., Vraimaki, E., & A. Diamantidis: Service Quality in the Public Sector: The Case of the Citizen's
Service Centers (CSCs) of Greece. International Journal of Productivity and Performance Management. 2013(62): 583-605. https://www.emerald.com/insight/content/doi/10.1108/IJPPM-12-2012-0140/full/html

9. Goodman, P., Mackey, M.C., & A. S. Tavakoli: Factors Related to Childbirth Satisfaction. Journal of Advanced Nursing. 2004(46): 212–219. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2648.2003.02981.x

10. Lonner, W. J., Berry, J. W., & G.H. Hofstede: Culture's consequences: International differences in work-related value 1980. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1496209

11. OLIVER, Richard L. Satisfaction: A behavioral perspective on the consumer: A behavioral perspective on the consumer: Routledge 2014. https://www.taylorfrancis.com/books/9781315700892

12. TAYELGN, Azmeraw; ZEGEYE, Desalegn T.; KEBEDE, Yigzaw. Mothers' satisfaction with referral hospital delivery service in Amhara Region, Ethiopia. BMC pregnancy and childbirth, 2011, 11.1: 78. https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-11-78

13. Aldridge, S., & Rowley, J. (1998). Measuring customer satisfaction in higher education. Quality assurance in education.
14. Attkisson, C. C., & Zwick, R. (1982). The Client Satisfaction Questionnaire: Psychometric properties and correlations with service utilization and psychotherapy outcome. Evaluation and program planning, 5(3), 233-237. 
http://www.adolphus.me.uk/emx/surveys/cus_satis_files/p197.htm

15. TADESSE, Biniyam Haile; BAYOU, Negalign Birhanu; NEBEB, Gebeyehu Tsega. Mothers’ Satisfaction with Institutional Delivery Service in Public Health Facilities of Omo Nada District, Jimma Zone. Clinical Medicine Research, 2017, 6.1: 23-30. 
https://s3.amazonaws.com/academia.edu.documents/60688502/10.11648.j.cmr.20170601.

16. ZEITHAML, Valarie A., et al. Delivering quality service: Balancing customer perceptions and expectations. Simon and Schuster, 1990:35-134 
https://books.google.co.il/books?hl=iw&lr=&id=RWPMYP7-

17. HOMBURG, Christian; GIERING, Annette. Personal characteristics as moderators of the relationship between customer satisfaction and loyalty—an empirical analysis. Psychology & Marketing, 2001, 18.1: 43-66.
18. SENARATH, Upul; FERNANDO, Dulitha N.; RODRIGO, Ishani. Factors determining client satisfaction with hospital-based perinatal care in Sri Lanka. Tropical Medicine & International Health, 2006, 11.9: 1442-1451.
https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-3156.2006.01698.x

19. CHOI, Kui-Son, et al. The service quality dimensions and patient satisfaction relationships in South Korea: comparisons across gender, age and types of service. Journal of Services Marketing, 2005, 19.3: 140-149.
https://www.emerald.com/insight/content/doi/10.1108/08876040510596812/full/html

20. SIKA AVORTRI, Gertrude; BEKE, Andy; ABEKAH-NKRUMAH, Gordon. Predictors of satisfaction with child birth services in public hospitals in Ghana. International journal of health care quality assurance, 2011, 24.3: 223-237.
https://www.emerald.com/insight/content/doi/10.1108/0952686111116660/full/html

21. MATEJIĆ, Bojana, et al. Maternal satisfaction with organized perinatal care in Serbian public hospitals. BMC pregnancy and childbirth, 2014, 14.1: 14.
https://bmcpregnancyandchildbirth.biomedcentral.com/articles/10.1186/1471-2393-14-14
22. BRYSON, John M.; CROSBY, Barbara C.; BLOOMBERG, Laura. Public value governance: Moving beyond traditional public administration and the new public management. *Public administration review*, 2014, 74.4: 445-456. https://onlinelibrary.wiley.com/doi/abs/10.1111/puar.12238

23. CHANG, Ching-Sheng; CHEN, Su-Yueh; LAN, Yi-Ting. Service quality, trust, and patient satisfaction in interpersonal-based medical service encounters. *BMC health services research*, 2013, 13.1: 22. https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-13-22

24. SRIVASTAVA, Aradhana, et al. Determinants of women’s satisfaction with maternal health care: a review of literature from developing countries. *BMC pregnancy and childbirth*, 2015, 15.1: 97. https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-015-0525-0

25. D'AMBRUOSO, Lucia; ABBEY, Mercy; HUSSEIN, Julia. Please understand when I cry out in pain: women's accounts of maternity services during labour and delivery in Ghana. *BMC public health*, 2005, 5.1: 140. https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-5-140
26. HAUCK, Yvonne, et al. The influence of childbirth expectations on Western Australian women's perceptions of their birth experience. *Midwifery, 2007, 23.3: 235-247.*
   https://www.sciencedirect.com/science/article/abs/pii/S026661380600026X

27. DREW, N. C.; SALMON, P.; WEBB, L. Mothers', midwives' and obstetricians' views on the features of obstetric care which influence satisfaction with childbirth. *BJOG: An International Journal of Obstetrics & Gynaecology, 1989, 96.9: 1084-1088.*
   https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1111/j.1471-0528.1989.tb03386.x

Muñoz-Sellés, E., Vallès-Segalés, A., & Goberna-Tricas, J. (2013). Use of alternative and complementary therapies in labor and delivery care: a cross-sectional study of midwives’ training in Catalan hospitals accredited as centers for normal birth. *BMC complementary and alternative medicine, 13*(1), 318.
   https://link.springer.com/article/10.1186/1472-6882-13-318

28. FERRER, Ma Belén Conesa, et al. Comparative study analysing women's childbirth satisfaction and obstetric outcomes across two different models of maternity care. *BMJ Open, 2016, 6.8: e011362.*
   https://bmjopen.bmj.com/content/6/8/e011362.short

29. SHAHAR, Rivka Neriya-Ben; LEV-ON, Azi. Gender, religion and new media: attitudes and behaviors related to the internet among Ultra-Orthodox women employed in computerized
environments. *International Journal of Communication*, 2011, 5: 21.

https://ijoc.org/index.php/ijoc/article/view/843

30. SHATTELL, Mona. Nurse–patient interaction: a review of the literature. *Journal of clinical nursing*, 2004, 13.6: 714-722.

https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2702.2004.00965.x

31. ROTER, Debra, et al. The effects of a continuing medical education programme in interpersonal communication skills on doctor practice and patient satisfaction in Trinidad and Tobago. *Medical education*, 1998, 32.2: 181-189.

https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1365-2923.1998.00196.x

32. HOMBURG, Christian; GIERING, Annette. Personal characteristics as moderators of the relationship between customer satisfaction and loyalty—an empirical analysis. *Psychology & Marketing*, 2001, 18.1: 43-66.

https://onlinelibrary.wiley.com/doi/abs/10.1002/1520-6793(200101)18:1%3C43::AID-MAR3%3E3.0.CO;2-I

33. GREEN, Josephine M.; COUPLAND, Vanessa A.; KITZINGER, Jenny V. Expectations, experiences, and psychological outcomes of childbirth: a prospective study of 825 women. *Birth*, 1990, 17.1: 15-24.

https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1523-536X.1990.tb00004.x
34. KRUPAT, Edward, et al. When physicians and patients think alike: patient-centered beliefs and their impact on satisfaction and trust. *Journal of Family Practice*, 2001, 50.12: 1057-1063. 
https://go.galegroup.com/ps/anonymous?id=GALE%7CA81136237&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=00943509&p=AONE&sw=w.

35. Ali M. How patients perceive healthcare services: A case of Ayub Teaching hospital, Abbottabad—Pakistan. SERV service QUAL quality. *International Journal of Healthcare Management*. 2018 Jan 2;11(1):52-9.

36. Clemes MD, Ozanne LK, Laurensen WL. Patients' perceptions of service quality dimensions: an empirical examination of health care in New Zealand. *Health Marketing Quarterly*. 2001 Sep 1;19(1):3-22.

37.