

# Psychosocial Risk Factors of Elective Abortion: A Structural Equation Modelling Approach

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## Abstract

**Introduction:** In Romania, although the number of elective abortions (EAB) has decreased, the percentage is still quite high, given the large variety of contraceptive methods and their ease of use. The principal factors that influence the decision of EAB are family, education, and income. Our study aimed to determine to what extent the psychosocial factors had an influence on EAB. **Material and Methods:** A sociological survey-based study was conducted, including women who presented for abortion on request during the period 2015-2018 at the "Bega" University Clinic of Obstetrics-Gynecology, Timișoara. The study investigated the degree of information and the use of contraceptive methods at the moment of pregnancy's termination request. The extracted latent constructs were women's general perception of abortion, emotional involvement regarding the pregnancy, relationship and family context, knowledge about the abortion's consequences, and social status. A structural equation model of EAB was derived, describing the direct (and indirect) effects among latent variables. **Results:** The EAB model showed significantly adequate fit ( $\chi^2(45)=382.262$ , GFI (Goodness-of-fit index) =0.91, CFI (Comparative Fit Index) =0.951, RMSEA (Root Mean Square Error of Approximation) =0.03, and  $p<0.001$ ). The model also showed adequate fit with significant indirect effects on EAB of general perception of abortion ( $\beta=1.132$ ,  $p=0.004$ ), emotional involvement regarding the pregnancy ( $\beta=0.036$ ,  $p=0.492$ ), knowledge about abortion consequences ( $\beta=0.184$ ,  $p=0.001$ ), relation and family context ( $\beta=0.268$ ,  $p=0.034$ ), and social status ( $\beta=0.061$ ,  $p=0.422$ ). **Conclusions:** Results support the use of structural equation modeling for investigating the moderating and mediating effects, while simultaneously measuring latent constructs. Also, results showed that five main factors have an influence on EAB.

**Keywords:** Abortion, Legal; Psychological Factors; Questionnaires; Latent Class Analysis

## Introduction

The term "abortion" refers to the termination of pregnancy before the fetus is fit for extrauterine life, regardless of the cause, spontaneous or provoked. In 2006, CDC issued a recommendation that encourages couples to conceive a reproductive life plan so that to reduce the rate of unwanted pregnancies, improve women's health, and reduce the risks of adverse pregnancies. According to an article published by WHO in 2015, "it is estimated that 22 million abortions are still carried out every year in unsafe conditions, resulting in 47,000 women dying and another 5 million women with disabilities", despite the variety of contraceptive methods and their ease of use [1]. About 73% of all

maternal deaths between 2003 and 2009 were due to direct obstetric causes, out of which 7.9% was due to abortion [2].

In Romania, women are opting for abortion on demand (14.9% in 2013, 10.1% in 2017 [3]), attracting both physical and psychological complications. Reardon showed that the main concerns include the prevalence of women who experience them, the severity of those negative reactions, in what degree the severity of the reaction can constitute a public or mental health problem and how can these reactions be classified [4].

The first document regarding a public debate on the subject of mental health implications of abortion appears in 1989 by General Surgeon C. Everett Koop, when he attested that : "although psychological responses following abortion can be "overwhelming to a given individual," the psychological risks following abortion were "miniscule" from a public health perspective" [5]. Nowadays, data interpretation of abortion and its relationship with mental health problems is very controversial. Proponents are inclined to emphasize the risks associated with abortion, whereas minimalists tend to emphasize pre-existing risk factors as the fundamental explanation for the correlations with the most unfavorable outcomes [6]. Still, both parts agree that a severe psychological reaction occur in extraordinary circumstances, while a mild, depressive ridden period succeeding abortion is more likely [7].

As for psychosocial factors, they can be divided into categories such as: maternal experience, social and religious influence, education etc. Maternal experience can include: childhood adversities, pregnancy desires and perceived abortion stigma. Moreover, when it comes to social and religious influence, they can have a greater impact on the decision, than the mother's wish itself. All of the above can outline the profile of a vulnerable patient, who can be easily manipulated by the ones around her, in times of crisis [8].

The main purpose underlying this study was to analyze women's perception of abortion, as well as to discover the causal factors. The following objectives have been elaborated:

- Determining the causes that led to the termination of the pregnancy and the risk factors associated with it.
- Specifying the degree to which the educational and social level had an impact on the decision to abort.
- Investigating to what degree the marital status and the influence of the family have an impact on making this decision.
- Assessing the knowledge related to contraception and family planning when the pregnant woman decided to interrupt the pregnancy.

## **Material and Method**

### *Selection and Description of Participants*

Data collection was carried out within three years, starting with the year 2015 and ending to 2018, at "Bega" Maternity Hospital in Timișoara. All the eligible women were invited to participate in the study. The questionnaire was addressed to women who addressed at the clinic for pregnancy termination.

The inclusion criteria were:

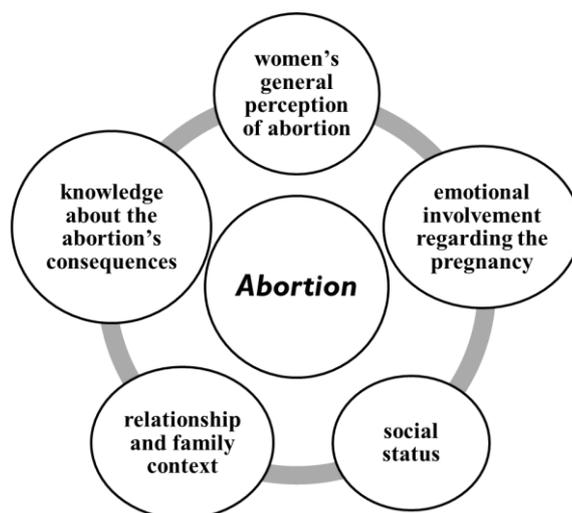
- Age 14 or older
- Presenting at the clinic during the mentioned period
- Pregnant
- Demanding abortion
- Agreeing to take part in the study

The women with advanced gestational age (>14 weeks of pregnancy according to the legal provisions) or those who refused participation were excluded from the study.

The women who agreed with participation were asked to filling-in anonymously the paper version of the survey, while being at the "Bega" Maternity Hospital, Timișoara, in the waiting room.

*Technical Information*

The data collecting tool is a sociological questionnaire developed by the Sociology Department from Psychology and Sociology Faculty of West University in Timișoara, in collaboration with “Bega” Maternity. It has 50 questions divided into three main parts: Contraceptive Methods, Abortion, and Factual Data (*Survey*, see the supplementary file). The first 21 questions include the patient’s knowledge regarding the contraceptive methods and the degree of their use. Moreover, the concept of family planning is mentioned and if the patients benefited from it. The Abortion section focuses on the impact of abortion on the pregnant mother and the family influence regarding this decision. It is compiled out of 19 questions divided into the following five latent constructs (Figure 1): women’s general perception of abortion (GPA), emotional involvement regarding the pregnancy (EIP), social status (SS), relationship and family context (RFC) and knowledge about abortion’s consequences (KAC).



**Figure 1.** Identified latent constructs

The last ten questions include general data about the mother: age, marital status, place of living, and so on.

*Statistical Analysis*

Statistical data analysis was performed using the SPSS v.20 software (SPSS Inc., Chicago, IL, USA) and the R software packages (v.3) for statistical computing ('lavaan' package). Continuous data with Gaussian distribution were described as mean ( $\pm$  standard deviation), while those without Gaussian distribution as median (interquartile range). Nominal data were presented as absolute frequency and percentage. The condition of normality was tested applying the Kolmogorov–Smirnov's test, while the equality of variances was tested using Levene's test. A  $p$ -value  $< 0.05$  was considered as the threshold for statistical significance, with a confidence level of 0.95 for estimating intervals.

The psychosocial risk factors were assessed by applying structural equation modelling (SEM) techniques. SEM is a combination of exploratory factor analysis and multiple regression. The goals were to identify latent variables and the relationships among observed variables and latent variables. The latent variables are constructs that are not directly tapped by a set of measures, and can be measured by multiple items.

The significance of the predictive fit was assessed by applying the Chi-square ( $\chi^2$ ) test. Acceptable fit was assumed to be attained when Goodness-of-fit index (GFI)  $\geq 0.90$ , Comparative fit index (CFI)  $\geq 0.95$ , and Root mean square error of approximation (RMSEA)  $< 0.06$ .

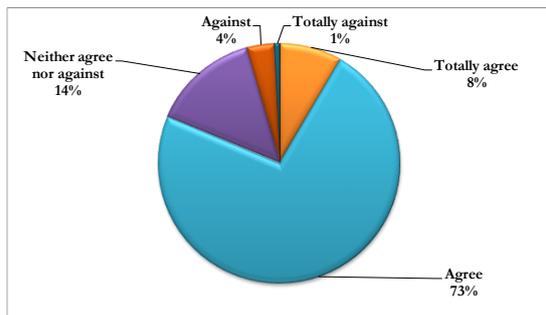
**Results and Discussion**

All eligible women agreed to participate in the study. Six-hundred and four subjects, aged between 14 and 43 years old, with an average age of 26.86 were included in the study. Most of the participants were from urban areas (55%), more than half of the respondents have graduated gymnasium or high school, 66% of them are housewives while others work in the private sector or were still in school. Family income is prevailing under 2000 RON.

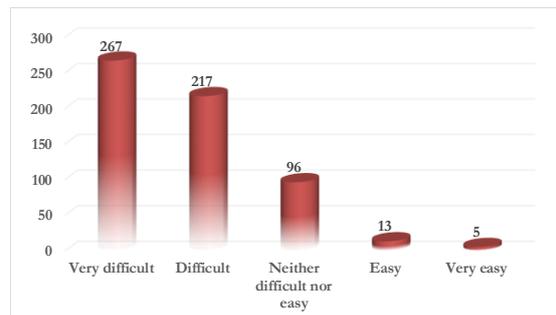
The responses were complete in a proportion of 70%, and almost 10% of the total missing answers was observed. The vast majority of questions that were missing answers were the ones with open answers.

We observed that more than half of the women (73%) thought that sometimes abortion is a necessary evil, while only 4% are totally against it (Figure 2). Forty-five percentage of the women who agreed that abortions are a necessary evil have an income under 1000 RON, and half of them have between 18-30 years old. Moreover, 62% of them have no income of their own, being students, housewives, or unemployed. More than half of the women that agree with abortion being a necessary evil are unmarried or live with a concubine.

Regarding the women that find abortion difficult or very difficult, 60% of them have between 18 and 30 years old, and 38% of them are married (Figure 3). More than half of the women that participated in the study have not graduated high school, have between 30 and 43 years old, are not legally married, have a family income between 1,000 and 2,000 RON, and are were housewives.



**Figure 2.** Abortion is, sometimes, a necessary evil? (Q22)



**Figure 3.** How difficult or easy is the moment of abortion for you? (Q23)

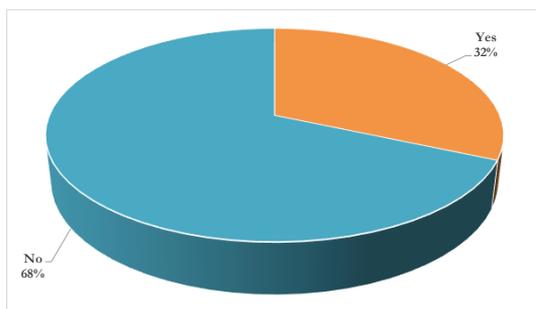
Of the participating women, 73% of them do not believe that abortion is sometimes a necessary evil. On the other hand, 484 mentioned that it was a difficult/really difficult moment in their life.

Most of the women discussed the matter of abortion with the father of the baby and they were advised by them to terminate the pregnancy. Moreover, the family of the patient had also a strong saying regarding this matter, half of them being neutral or anti-abortion, while the other half wanted them to have the abortion. Having this in view, we can conclude that family is one of the main influences when making this decision (Table 1).

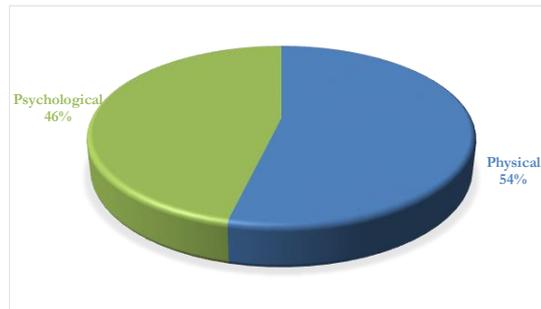
The decision of abortion was not made in the knowledge of the cause, since 68% of the women were not aware of the risks associated with pregnancy termination (Figure 4). However, the risks were explained to all of them by their gynecologist, before the procedure, the most mentioned being physical and psychological risks. None of them changed their mind after acknowledging the risks, and they decided to continue with the procedure. Fifty-six percent of them have already had one or more abortions (Figure 5).

**Table 1.** Components related to the family context

Question component	Absolute frequency	Percentage (%)
Q27. With whom have you discussed about the pregnancy?		
Father of the baby	538	67.50
Her parents	153	19.20
Father's parents	27	3.39
Other family members	34	4.27
Colleagues	9	1.13
Friends	11	1.38
General practitioner	6	0.75
Gynecologist	19	2.38
Q28. What was the reaction of the baby's father?		
He was against	140	25.93
He did not care	105	19.44
He wanted me to have the abortion	295	54.63
Q29. What was your parents' reaction?		
They were against	57	24.36
They did not care	54	23.08
They wanted me to have the abortion	123	52.56



**Figure 4.** When did you decide to have the abortion, were you aware of the risks? (Q35)



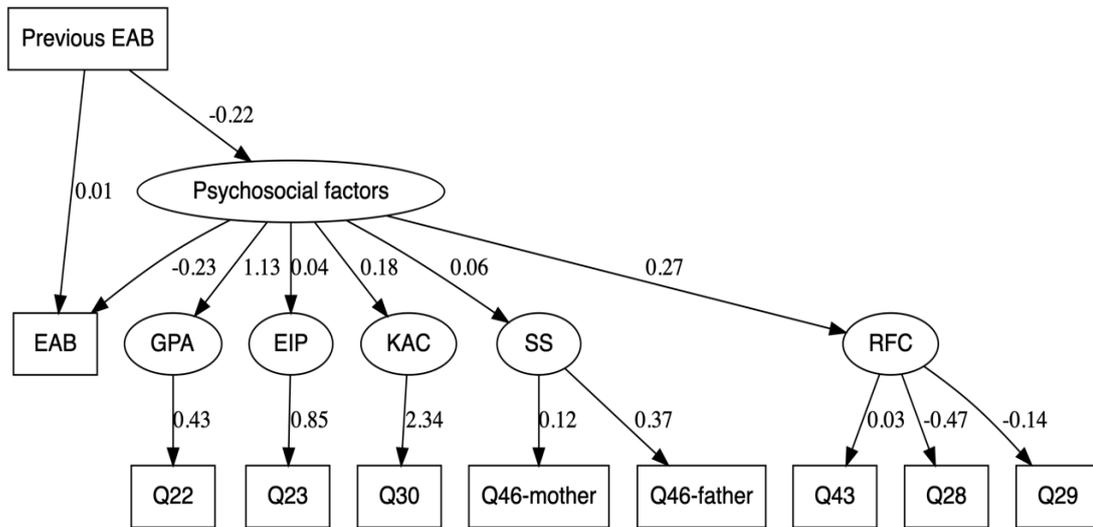
**Figure 5.** Which were the main risk categories your doctor spoke with you about? (Q37)

Every latent construct contributed with a different amount to EAB. The EAB model revealed that GPA, RFC, and SS had the strongest influence on EAB, with a correlation coefficient of 0.69, 0.58, and 0.61, respectively. At the same time, the constructs EIP and KAC had the lowest contribution, correlation coefficient 0.35 and 0.26, respectively.

The EAB model showed significantly adequate fit ( $\chi^2(45)=382.262$ ,  $GFI=0.91$ ,  $CFI=0.95$ ,  $RMSEA=0.03$ , and  $p<0.001$ ). The model also showed adequate fit with significant indirect effects on EAB regarding the general perception of abortion ( $\beta=1.132$ ,  $p=0.004$ ), emotional involvement regarding the pregnancy ( $\beta=0.036$ ,  $p=0.492$ ), knowledge about abortion consequences ( $\beta=0.184$ ,  $p=0.001$ ), relation and family context ( $\beta=0.268$ ,  $p=0.034$ ), and social status ( $\beta=0.061$ ,  $p=0.422$ ) (Figure 6). The standard error of the latent variable estimates were 0.084, 0.025, 0.071, 0.111, and 0.050 for GPA, EIP, KAC, SS and RFC, respectively. The significance p was  $< 0.001$  for GPA, EIP and KAC, and 0.268 and 0.015 for SS and RFC, respectively.

Worldwide, between 2010-2014, approximately 56.3 million abortions were performed each year, with 5.9 million more than between 1990-1994 [9,10]. The subject of EAB is of high interest, being one of the main public health issues. Agbeno et al. showed that 53% of women with unintended pregnancies seeking abortion services in Ghana had no biological children, although the majority had

been pregnant more than twice (58%) [11]. A significant association between higher education and exposure to options counseling ( $p < 0.001$ ) had also been reported in Ghana [11].



**Figure 6.** Components and associated questions in the structural equation model. *Abbreviations:* GPA, general perception of abortion; EIP, involvement regarding the pregnancy; KAC, knowledge about the abortion consequences; RFC, relationship and family context; SS, social status; EAB, elective abortion; q, question.

Although questionnaires have a lot of advantages when used as a tool for data collection, they provide a biased data base, which can lead to errors in analyzation. In our case, the lack of responses in some cases can contribute to inaccurate results. In addition, the sensitive character of the questions and the short time of completion (during consultation), can contribute also to the biased character of the data base. Moreover, we believe that the sample could have been bigger if the same questionnaire would have been applied in more than one clinic. Last but not least, the large variety that was found in the open answers was a challenge to categorize.

To sum-up, our results support the use of structural equation modelling for measuring latent constructs, while simultaneously investigating their moderating and mediating effects on elective abortion. The social status, along with relation and family context, proved mediators to the EAB as well as the emotional involvement regarding the pregnancy. Although abortion was a difficult moment in woman’s life, it was considered a necessary evil.

**List of abbreviations**

- EAB-Elective Abortion
- CFI-Comparative Fit Index
- GFI- Goodness of Fit Index
- RMSEA- Root Mean Square Error of Approximation
- CDC- Centers for Disease Control and Prevention
- WHO- World Health Organization
- SEM- Structural Equation Modelling
- Q-Question

**Conflict of Interest**

The authors declare that they have no conflict of interest.

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