ELECTIVE SURGICAL ABORTION: SOCIO-DEMOGRAPHIC INFLUENCES ON DELAYED REQUEST OF UNINTENDED PREGNANCY TERMINATION

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Abstract

Objective: To determine the influences of socio-demographic factors on delayed presentation to abortion on demand procedure.

Materials and methods: Was conducted a retrospective analytical study including 997 patients who requested pregnancy termination during 6-14 weeks of gestation from December 2016 to April 2018. Patients were structured in two groups depending on the gestational age (6-9 weeks – 423 patients and 10-14 weeks – 574 patients), being evaluated socio-demographic and background characteristics found in the medical records in relation to early and delayed abortion request.

Results: Analyzing the socio-demographic factors was observed that women < 20 years old presented the earliest to abortion on demand (OR = 0.68), while patients with no occupation presented a delayed request for abortion (OR = 2.12), in contrast with employed women (OR = 0.57). Education assessment showed that patients less educated had a late call for abortion procedure, the latest in women with no education at all (OR = 2.03). Obstetrical background analysis resulted in higher odds for a delayed request in multigravidas with more than 5 previous pregnancies (OR = 3.09), multiparas (OR = 2.27), and abortion history (OR = 1.99).

Conclusion: Abortion on demand is an important public health problem due to the low level of sexual education among women in our country. More detailed further researches in this domain may identify disadvantaged women, targeted policy interventions having potential to reduce the delay for abortion presentation.

Rezumat

Obiectiv: Determinarea influentei factorilor socio-demografici asupra prezentării tardive pentru procedura de avort la cerere.

Material si metodă: Un studiu retrospectiv-analitic incluzând 997 paciente care au solicitat întreruperea sarcinii între 6-14 săptămâni de gestatie a fost desfăsurat în perioada Decembrie 2016 – Aprilie 2018. Au fost alcătuite două grupuri de studiu în functie de vârsta gestationale (6-9 săptămâni – 423 cazuri, 10-14 săptămâni – 574 cazuri), pentru care au fost evaluati factori socio-demografici si date privind istoricul medical al pacientelor, în relatie cu momentul tardiv sau precoce de solicitare a avortului.

Rezultate: În urma analizei socio-demografice s-a constatat că pacientele cu vârste < 20 ani au solicitat întreruperea sarcinii cel mai precoce (OR = 0.68), cele fără ocupatie prezentându-se la avortul la cerere tardiv (OR = 2.12), în contrast cu pacientele care au declarat existenta unui loc de muncă (OR = 0.57). Evaluarea nivelului de educatie a dovedit că în cazul pacientelor cu o educatie precară solicitarea avortului este mult mai tardivă, în special în cazul celor fără educatie (OR = 2.03). Analiza istoricului obstetrical al pacientelor a demonstrat sanse mai crescute ca pacientele cu mai mult de 5 sarcini anterioare să neglijeze solicitarea precoce a întreruperii de sarcină (OR = 3.09), aceeasi situatie fiind regăsită si pentru multipare (OR = 2.27), respectiv cazurile cu istoric de avort (OR = 1.99).

Concluzii: Avortul la cerere reprezintă o importantă temă de sănătate publică datorită nivelului redus de educatie sexuală în tara noastră. Studii mai detaliate ar putea pune in lumină grupurile de femei dezavantajate, politicile tintite având potentialul de a reduce ponderea solicitărilor tardive de întrerupere a sarcinii.

Cuvinte cheie: sarcină, avort, educatie, ocupatie, tardiv

Introduction

Although family planning services are responsible with the prevention of an unintended pregnancy, many women have a deficient access to useful contraceptive methods or experience a method failure [1,2]. Often, patients with unintended pregnancies request abortion, performed medically or surgically depending on the age of the pregnancy, the risk of complications increasing directly proportional to the gestational age [3,4,5]. Annually about 50 million pregnancies are ended by induced abortion with variations depending on geographical region, most countries developing gestational age-related restrictions [6]. In Romania, the legal framework allows surgical termination of pregnancies under 14 weeks of gestation in the public sector [7]. Unfortunately, abortion on demand is still used as a common practice especially in the developing countries in the disadvantage of contraceptive methods, becoming a critical problem in women's public health [8,9]. This study has the objective to determine the sociodemographic and personal background influences on the gestational age in which the surgical abortion procedure is performed.

Materials and Methods

Between December 2016 and April 2018 was conducted a retrospective study at the First Obstetrics and Gynecology Clinic, Târgu Mure' Emergency Clinical County Hospital from Romania. The study included 997 patients with unintended pregnancies between 6 and 14 weeks of gestation confirmed through ultrasonography, presenting for elective surgical abortion according to the existing legal framework in our country. For all subjects were gathered sociodemographic data including age, urban or rural provenience, occupation and level of education, also information concerning obstetrical background or associated diseases. Pregnancy termination was performed under paracervical block anesthesia, followed by cervical dilatation with Hegar dilators and vacuum aspiration for uterine evacuation, in the end being performed a routine check curettage. Mentioned data was inserted and processed in Microsoft Excel, various aspects being statistically operated with GraphPad InStat software using appropriate methods for each type of variable. Statistical assessment comprised two sections: in the beginning was performed a quantitative and qualitative analysis concerning the dissimilarities in patients' characteristics and background for each year of study, followed by a quantitative analysis of the existing relation between subjects' characteristics and pregnancy termination gestational age. Following statistical parameters were considered: mean, P value, odds ratio.

Results

Variations of subjects' features during the years of study

Elective termination of an unintended pregnancy is still considered major health problem in developing countries. Analyzing the subjects' data were observed differences between the years in which the study was conducted, results being presented in Table 1. Age-related differences were the first observed, mean age of patients requesting a pregnancy termination procedure having a smaller value with the passage of years (28.56 years old. in 2016, 27.41 years old in 2017 and 26.92 years old in 2018), differences between the years of study being

Table 1. Socio-demographic and background-related variations during the years of study

	2016 Mean	2017 Mean	2018 Mean	P value
Age (years)	28.56	27.41	26.92	0.0184
Provenience (urban = 1; rural = 2)	1.73	1.70	1.69	NS
Occupation (no occupation = 0; schoolgirls = 1; undergraduates = 2; workers = 3)	0.82	0.68	0.99	NS
Level of education (no education = 0; elementary school = 1; middle school = 2; high school = 3; vocational education = 4; higher education = 5)	1.98	2.07	2.24	NS
Gravidity (total of pregnancies)	4.45	4.19	4.05	0.05
Parity (total of births)	1.98	1.78	1.64	0.0291
Abortions	1.47	1.40	1.41	NS
Associated pathologies	0.08	0.12	0.19	0.0005
Previous cesarean sections	0.06	0.09	0.16	0.0048

NS = not significant P value (> 0.05)

statistically relevant (P = 0.0184). For the provenience environment assessment, was assigned 1 point for urban and 2 points for rural provenience, observing a higher share for urban residence of subjects in 2018 in relation to years 2017 and 2016, although the differences between the years of study showed no statistical significance. Socio-demographic characteristics analysis also included occupation and level of education found among studied patients, assigning different values for each category of occupation and level of studies found in the medical records, as shown in Table 1. While the fraction of patients with no occupation decreased from 2016 to 2018, and the mean level of education of patients was the highest in 2018, the existing differences were not statistically notable.

In addition to socio-demographic features, medical records were explored for subjects' background. Was observed that average number of previous pregnancies among subjects has decreased from 2016 (4.45) to 2018 (4.05), but the statistical significance resulted to be limited (P = 0.05). Same decline was found related to parity, in this situation the statistical analysis being notable (P = 0.0291). The number of previous abortions found in subjects' history showed no major changes, variations revealing no statistical relevance. Interesting outcomes were observed regarding the pathological background, the number of women with chronic diseases requesting

abortion spreading from 2016 to 2018 (P = 0.0005). A particular condition was a prior cesarean section, that increases the risk of abortion procedure complications. Analyzing this aspect, was observed a progressive increase in patients with cesarean scar demanding for pregnancy interruption from 2016 to 2018 (P = 0.048).

Socio-demographic and personal background influences on delayed request of pregnancy termination

The most important section of this research was to prove the impact of some socio-demographic and background-related features for late demand of a pregnancy-termination procedure, performing a quantitative statistical analysis revealed in Table 2. For the statistical assessment the 997 cases included in this research were structured in two groups: Delayed Request Group (DRG) including 423 subjects demanding the pregnancy termination at the gestational age of 10-14 weeks, and Early Request Group including 574 patients with abortion call at 6-9 weeks. First of all was studied the impact of age on late demand of an abortion, observing that for patients under 20 years old age was involved as a protective factor (OR = 0.68), other age groups having no influence on delayed abortion request. Related to the provenience environment, subjects belonging to rural areas presented a higher risk for a delayed request

Table 2. Impact of socio-demographic and background characteristics on pregnancy-termination gestational age

Variable	Delayed Request Group (DRG) (10-14 weeks) n = 423 (%)	Early Request Group (ERG) (6-9 weeks) n = 574 (%)	Odds Ratio (OR)	P value
Age (years):				
< 20	58 (13.71)	109 (18.99)	0.68	0.0318
20 - 29	177 (41.84)	238 (41.46)	1*	NS
30 - 39	160 (37.83)	183 (31.88)	1.30	NS
≥ 40	28 (6.62)	44 (7.67)	0.85	NS
Residence:				
Urban	107 (25.29)	172 (29.96)	0.79	NS
Rural	316 (74.71)	402 (70.04)	1.26	NS
Occupation:				
Schoolgirls	17 (4.02)	53 (9.23)	0.41	0.0016
Undergraduates	1 (0.23)	4 (0.70)	0.33	NS
Workers	76 (17.97)	159 (27.70)	0.57	0.0004
No occupation	329 (77.78)	358 (62.37)	2.12	<0.0001
Level of education:				
No education	87 (20.57)	65 (11.32)	2.03	<0.0001
Elementary school	107 (25.29)	112 (19.51)	1.39	0.0305
Middle school	139 (32.86)	151 (26.31)	1.37	0.0287
High school	38 (8.98)	122 (21.26)	0.36	<0.0001
Vocational education	34 (8.04)	78 (13.59)	0.55	0.0061
Higher education	18 (4.26)	46 (8.01)	0.51	0.0183
Gravidity:				
Primigravida	47 (11.11)	111 (19.34)	0.52	0.0004
Multigravida < 5 pregnancies	152 (35.93)	310 (54.01)	0.48	<0.0001
Multigravida ≥ 5 pregnancies	224 (52.96)	153 (26.65)	3.09	<0.0001
Parity:				
Nullipara	68 (16.08)	147 (25.61)	0.56	0.0003
Primipara	74 (17.49)	160 (27.87)	0.54	0.0001
Multipara	281 (66.43)	267 (46.52)	2.27	<0.0001
Abortions:				
No abortions	138 (32.62)	282 (49.13)	0.50	<0.0001
Previous abortions	285 (67.38)	292 (50.87)	1.99	<0.0001
Pathological background:				
Associated pathologies	42 (9.93)	60 (10.45)	1*	NS
Previous cesarean section	26 (6.15)	38 (6.62)	1*	NS

NS = not significant P value (> 0.05)

of pregnancy termination in comparison to subjects from urban areas (OR = 1.26), although the calculated risk was not statistically significant. Following the social features analysis, was observed that women with no occupation presented the highest significant risk for a late demand for abortion (OR = 2.12, P < 0.0001) in relation to other types of occupations found among patients, the statistical results proving that frequenting school, higher educations or employment could be considered protective factors for a delayed abortion (OR: 0.41; 0.33; 0.57). Level of education was another social factor analyzed in relation to delayed pregnancy interruption. Was observed that patient with no graduated school had the highest risk factor for a late request of the procedure (OR = 2.03, P < 0.0001), followed by subjects who graduated elementary school (OR = 1.39) and middle school (OR = 1.37); statistical results for graduated high

school, vocational school or higher education proved the opposite impact, being considered protective factors for delayed abortion demand.

Furthermore, were analyzed aspects regarding the patients' background, including obstetrical and pathological particularities. Analyzing the data, was noticed that women with less than 5 prior pregnancies had a protective factor for a late demand of the abortion procedure, while patients who declared more than 5 previous gestations presented a significantly higher risk (OR = 3.09, P < 0.0001). Similar results were found evaluating parity, subjects exposed to the highest risk for a delayed pregnancy interruption were those with at least 2 prior births (OR = 2.27, P < 0.0001), for nulliparous and primiparous women parity being determined a protective factor (OR: 0.56; 0.54). Related to abortion history was found a significant risk in case of patients with previous abortions for a delayed request of abortion (OR = 1.99, P < 0.0001). Pathological background including associated chronic diseases and prior cesarean sections was not associated with an increased risk of late abortion on demand.

Was also performed a comparative analysis regarding age of gestation between several categories of subjects, presented in Table 3. Evaluating the demographic characteristics, for patients aged over 20 years old was calculated a mean of 9.34 weeks of gestation, significantly higher than in younger patients (P = 0.0048); between patients coming from urban and rural environment were not found statistically significant differences. In patients with no occupation was observed a significantly higher gestational age (9.44 weeks) in relation to patients with any existing occupation at the moment of pregnancy interruption procedure (P < 0.0001). Also, non-workers presented a later request (9.35 weeks) comparative with employed women (P = 0.0011), while for schoolgirls was observed the earliest call for abortion (P = 0.0011). Absence of education was associated with a delayed pregnancy termination (9.77 weeks) in comparison to patients with any graduated school (P < 0.0001); higher education and high school were associated with an earlier request, results being statistically significant. Regarding the obstetrical background, for multigravidas was found

Table 3. Differences regarding gestational age (weeks) in various categories of subjects

	Group 1 Mean (weeks)	Group 2 Mean (weeks)	P value
Demographic features:			
Age ≤ 20 y.o. vs. Age > 20 y.o.	8.92	9.34	0.0048
Urban vs. Rural	9.10	9.31	NS
Occupations:			
No occupation vs. Existing occupation	9.44	8.83	<0.0001
Workers vs. Non-workers	8.92	9.35	0.0011
Schoolgirls vs. Other occupations	8.54	9.30	0.0011
Education			
No education vs. Existing education	9.77	9.16	<0.0001
Higher education vs. Other levels of education	8.81	9.28	0.0286
High school vs. Other levels of educations	8.56	9.38	<0.0001
Obstetrical background			
Primigravida vs. Multigravida	8.66	9.36	<0.0001
Nulliparous vs. Parous women	8.74	9.39	<0.0001
No abortion history vs. Abortion history	8.86	9.53	<0.0001
Pathological background			
No pathologies vs. Associated pathologies	9.26	9.16	NS
No uterine scar vs. Previous cesarean section	9.19	9.25	NS

NS = not significant P value (> 0.05)

a delayed demand for abortion (9.36 weeks) in comparison to primigravidas (P < 0.0001), a similar situation being observed for parous women (9.39 weeks) who opted for the surgical abortion procedure significantly late in relation to nulliparous (P < 0.0001). Also, patients with an abortion background solicited the intervention at a significantly more advanced gestational age (9.53 weeks) in contrast with patients with no prior abortions (P < 0.0001). Related to associated pathologies and previous cesarean section, the determined results were not statistically significant.

Discussion

Induced abortion was considered trough several studies an indicator of reproductive health, presenting various socio-demographic inequalities [10]. Globally, the majority of women present a variable risk for an unintended pregnancy, yet exists an asymmetrical distribution of social determinants of health that increase the risk and contribute to the increase of elective abortion incidence, such as age, residence, education, socio-economic status or pathological background [11,12,13].

During the period of study were observed several variations of the socio-demographic and background-related factors. From 2016 to 2018 the average age of requesting pregnancy termination significantly decreased, due to the elevating incidence of unintended pregnancies in teenagers, many authors reporting the same findings [14]; younger women have much higher coital frequencies and usually no previous contraceptive usage, so the abortion rates in teenagers became excessive in relation to other age groups [15]. An interesting aspect was observed related to the provenience of patients, increasing progressively the abortion request in urban residents from 2016 to 2018, but contrary to other authors' reports, our findings were not statistically significant [16]. Even if women with no occupation and poor education formed the highest fraction of the present study group, patients with occupation and a higher level of education who requested surgical abortion increased in 2018 in comparison to 2016 despite the wider knowledge of these categories of patients about

pregnancy and contraceptive methods, our findings being in contradiction to some literature reports [16,17]. Mostly due to the great variety of contraceptive methods available in the last years in our country, and also to the increasing number of medical abortions performed in private sector, average gravidity and parity in women presenting to surgical abortion in public sector decreased significantly during the period of study, other studies showing no differences regarding obstetrical history with the passage of time [18]. Also, women with associated pathologies and previously performed cesarean sections had a significantly higher presence to abortion on demand from 2016 to 2018, being a lack of researches of these aspects in literature. A possible reason for these findings could be the consciousness and increasing level of information about potential contraindications of a pregnancy due to an existing disease, because of possible maternal complications and fetal abnormalities.

The main aspect this paper follows is to emphasize the socio-demographic and background-related factors that may contribute to a request for pregnancy termination at a more advanced gestational age. A delayed abortion represents an important threat to a woman's health and reproductive system, the risk of post-abortion frequency of complications being directly related to the age of the pregnancy at the time of the procedure: hemorrhage, cervical laceration or injury, infection, incomplete abortion, cervical incompetence in future pregnancies, uterine perforation, still existing cases in which a surgical intervention is needed [19,20,21]. Although the early request for pregnancy termination is an important predictor of a successful procedure and a lower risk of post-abortion complications, there are few published studies in which sociodemographic factors of patients are evaluated in relation to abortion gestational age.

The first analyzed demographic factor was age of patients, resulting that women under 20 years old were less susceptible for a late demand of abortion, but these findings were in contradiction with other authors' reports [22], same results being found for women over 40 years old; the age group with the greatest risk for a delayed request for abortion was

30-39 years old, previous studies reporting variable results [23]. This aspect is also emphasized by the quantitative analysis of the gestational age, patients under 20 years old having an average gestational age significantly smaller than women over 20 years old. Assessing the residence of patients were not found significant results, also this demographic factor in relation to abortion gestational age has not been clearly analyzed in literature.

Regarding the occupation, we observed that schoolgirls, undergraduates and employed women were more likely to request abortion at a smaller gestational age, while according to our research, women with no occupation and non-employed were more likely to choose abortion at a more advanced age of pregnancy, also having the highest average gestational age. Level of education assessment also revealed several important aspects, women who graduated high school, vocational or higher education being more conscious to demand abortion earlier, while persons less educated (no education, elementary od middle school) were associated with a higher risk of late presentation for pregnancy termination, the smallest average age being found for patients who graduated high school. Occupation and level of education were factors also evaluated in other researches in relation cu abortion request incidence; studies shown that employed and well-educated women were more likely to request an abortion, due to an increased level of information about abortion services, but no correlations with the gestational age at which the abortion was performed were found in literature [24].

Following the evaluation of obstetrical background, we observed that the highest odds for a late presentation to abortion on demand were associated with multigravidas e" 5 prior pregnancies, presenting an average age of abortion significantly higher in relation to primigravidas. It is important to mention that primigravidas and multigravidas with less than 5 previous pregnancies were more likely to request early a pregnancy interruption.

Assessment of parity revealed surprising results: the highest significant risk for a delayed abortion request was found in multiparas, and also the highest average of pregnancy age, despite the

acquired experience during prior pregnancies about recognizing the symptoms, evaluating the duration of amenorrhea, taking a simple pregnancy test, or presenting to an obstetrics practitioner. Nulliparas and primiparas showed higher statistically significant odds for an early presentation for abortion on demand. Another interesting aspect was the evaluation of abortion history, observing that women with at least one previous pregnancy termination had a higher probability for a late abortion presentation.

On the contrary, a recent study conducted in United States of America found no significant differences regarding the obstetrical and reproductive background in women with late and early abortion request [25].

Pathological background statistical analysis showed no significant aspects, despite the fact that the fraction of women with associated diseases and uterine scar due to a prior cesarean section increased in the last years. These factors were not specifically analyzed in previous studies.

Conclusion

This study shows from a statistical perspective that exist several socio-demographic factors that may have an influence on the gestational age in which the abortion for an unintended pregnancy is requested. No existing occupation or employment, precarious education, more than 5 prior pregnancies and previous performed abortions were the most involved factors in a delayed request of an abortion on demand, fact that suggests an important public health problem due to the low level of sexual education among women in our country. We consider that more detailed further researches in this domain may identify disadvantaged women, targeted policy interventions having potential to reduce the delay for abortion presentation. Given the possible abortion complications when the procedure is performed at a more advanced gestational age, appears to be necessary to promote an efficient pregnancy planning for all social layers, especially among women less educated, avoiding a late presentation for abortion on demand.

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