

Psychosocial adjustment after induced abortion and its explanatory factors
among adolescent and adult women

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Abstract

Objective: To compare the depressive symptoms and quality of life (QoL) among adolescents (<20 years) and adult women who have had an abortion and to explore individual, social, relational and decision-making explanatory factors for (mal)adjustment in each group. **Background:** International findings are not consistent regarding the presence of negative psychosocial outcomes after abortion or about the explanatory factors for occurrence among adolescents and adult women. **Methods:** In this cross-sectional study, 177 adolescents (65.1%) and 95 adult women (34.9%) who underwent abortion were recruited. Data on individual, social, relational and decision-making characteristics, depressive symptoms (*Edinburgh Postnatal Depression Scale*) and QoL (EUROHIS-QOL-8) were collected through self-report questionnaires at 16 healthcare services that provide abortion. **Results:** Although adolescents are not at greater risk of maladjustment than adult women, abortion may be an emotionally significant event for both age groups. Regarding adolescents, feelings of being pressured into abortion and lower satisfaction with the abortion decision were significantly associated with depressive symptoms and lower QoL. Lower support from the mother was also associated with lower QoL. With regard to adult women, lower satisfaction with the abortion decision was significantly associated with depressive symptoms. None of variables was significantly associated with QoL. **Conclusion:** Our results suggest that adolescents are not at greater risk of psychosocial maladjustment than are adult women. Factors from different ecological contexts and specific factors depending on age group should be considered in preventive interventions for (mal)adjustment after abortion.

Keywords: abortion, adolescents, adult women, depressive symptoms, quality of life.

Introduction

The decision to undergo an abortion is an important public health concern that may be recognised as a stressful (Adler et al., 1992) and emotionally significant event in a woman's life (Biggs, Upadhyay, Steinberg, & Foster, 2014). Portugal is one of the European countries in which this practice was most recently legalised. Since 2007, women may request an abortion during the first 10 weeks of gestation (Assembly of the Republic [AR], 2007). The latest statistics show that more than 16% of women who become pregnant decide to terminate their pregnancies (PORDATA, 2014) and 11% of abortions (Directorate-General of Health [DGH], 2015) are performed on adolescents (<20 years old, World Health Organization [WHO], 1975). Globally, the safety of first-trimester abortion procedures is well established (WHO, 2012). However, international findings are not consistent regarding the presence and/or the clinical relevance of negative psychological outcomes after abortion (e.g., Bellieni & Buonocore, 2013; Charles, Polis, Sridhara, & Blum, 2008; Coleman, 2011; Major et al., 2009; Rousset, Brulfert, Séjourné, Goutaudier, & Chabrol, 2011), particularly for vulnerable populations such as adolescents (Warren, Harvey, & Henderson, 2010). Moreover, the literature indicates that women's mental health after abortion is shaped by certain aspects of their lives (e.g., Adler et al., 1992; Coleman, Reardon, Strahan, & Cogle, 2005; Curley & Johnston, 2013; Major & Cozzarelli, 1992; Major et al., 2009; Steinberg & Finer, 2011) and by the sociocultural context (Major et al., 2009). However, to our knowledge, few studies have considered the explanatory role of variables from different domains of women's lives in psychosocial adjustment after abortion (e.g., Coleman et al., 2005; Major & Cozzarelli, 1992; Rocca, Kimport, Gould, & Foster, 2013), and none of these studies has been performed in Portugal. In fact, research in the Portuguese sociocultural context was long constrained by the legal position on abortion (e.g., Cosme & Leal, 1998; Ourô & Leal, 1998). Since its legalisation, interest in this reproductive experience has increased (e.g., Brandão, 2014; Canário, Figueiredo, & Ricou, 2011; Fernandes, 2014; Guedes, Gameiro, & Canavarro, 2010). However, the most recent studies are institutionally restricted and descriptive, which do not afford a comprehensive view of this practice.

Psychosocial adjustment after abortion

Although a large body of international research exists on women's mental health after abortion, inconsistent results persist. Whereas some studies have reported negative psychosocial outcomes, such as depression (Fergusson, Horwood, & Ridder, 2006; Pedersen, 2008; Rousset et al., 2011), others have shown no significant effect on psychosocial adjustment (Charles et al., 2008; Major et al., 2009; Renner, Guzman, & Brahmi, 2014) or, conversely, have shown positive outcomes, such as satisfaction and perceptions of the benefits of abortion (Major et al., 2000).

Additionally, although the positive dimensions of mental health, such as Quality of Life (QoL) (Power, 2003), are becoming increasingly valued in women's reproductive health research (e.g., Pires, Araújo Pedrosa, & Canavarro, 2014), studies of the relationship between the abortion experience and the positive dimensions of women's health remain scarce (Biggs et al., 2014; Broen, Moum, Bödtker, & Ekeberg, 2005; Westhoff, Picardo, & Morrow, 2003).

An ecological perspective on (mal)adjustment

The literature depicts women's mental health after abortion as a complex and multidimensional process that can be shaped by certain aspects of women's lives (e.g., Coleman et al., 2005; Curley & Johnston, 2013; Major et al., 2009; Steinberg & Finer, 2011). Accordingly, the bioecological model of human development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998) constitutes the framework of this study. Hence, the distinct contextual influences on human development and their interactions should be considered (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). Regarding women's mental health after abortion, the literature highlights that specific factors relating to individual, social and relational contexts and decision-making process variables, as well as the interactions between these variables, should be considered in order to fully understand the psychosocial adjustment after abortion (e.g., Adler et al., 1992; Coleman et al., 2005; Curley & Johnston, 2013; Major & Cozzarelli, 1992; Major et al., 2009; Steinberg & Finer, 2011).

At the individual level, women's age has been relatively unexplored. In fact, most studies have analysed the psychosocial adjustment of women who had an abortion by treating the group as a whole. The few studies that have compared young and adult women have not presented consistent results. Whereas some studies have shown that younger age is a risk factor for mental health problems (Curley & Johnston, 2013; Fergusson et al., 2006; Major et al., 2000, 2009), others have reported conflicting results (Pedersen, 2008; Pope, Adler, & Tschann, 2001; Quinton, Major, & Richards, 2001; Renner et al., 2014; Warren et al., 2010). Despite these incongruent findings, the literature has generally identified adolescents as a vulnerable group in the context of abortion. Several developmental characteristics, such as a lower cognitive ability (Commendador, 2010) and a greater need for time to make complex decisions in comparison with adult women (Dobkin, Perrucci, & Dehlendorf, 2013), have been the most cited reasons. These potential differences may have important implications for abortion legislation and healthcare services (Pope et al., 2001; Renner et al., 2014) and should not be ignored.

The results indicate that being single (Guedes, 2008) and belonging to a low socioeconomic status (Finer & Henshaw, 2006) may predict women's psychosocial maladjustment. However, on issues of reproductive history, the results differ regarding the association between previous childbirth (Guedes, 2008; Major et al., 2009; Taft & Watson, 2008) and psychological adjustment.

They also conflict regarding social factors, specifically the explanatory role of religious involvement in women's mental health (Curley & Johnston, 2013; Major et al., 2009).

With respect to relational factors, a consensus exists regarding the explanatory role of the lack of perceived social support from the mother (Cameron, 2010) in the psychosocial maladjustment, but not the lack of social support from the male partner (Canário et al., 2011; Guedes, 2008; National Collaborating Centre for Mental Health, 2011).

Finally, considering the decision-making process, research has highlighted associations between the psychosocial maladjustment and a pregnancy that is initially desired (Cameron, 2010), ambivalence in the decision-making process (Broen, Moum, Bödtker, & Ekeberg, 2006; Cameron, 2010), lower satisfaction with the abortion decision (Franz & Reardon, 1992; Major et al., 2000), feelings of being pressured into abortion (Broen et al., 2005; Ralph, Gould, Baker, & Foster, 2014) and concealing the decision to terminate the pregnancy from the family (Major & Gramzow, 1999).

Study overview

Despite the relevance of previous research, an ecological approach to studying the explanatory factors of psychosocial adjustment among adolescents and adult women remains unexplored. The few quantitative studies that have considered both younger and adult women (e.g., Pope et al., 2001; Quinton et al., 2001; Ralph et al., 2014) have only compared variables between the two age groups, but have not provided conclusions about their explanatory role in psychosocial adjustment. Finally, since abortion was legalised, no studies have compared psychosocial adjustment between adolescents and adults who have had an abortion in the Portuguese sociocultural context (Pereira, Pires, & Canavarro, 2013).

Therefore, this study has two main goals: (1) to compare the depressive symptoms and QoL among adolescents (<20 years) and adult women who have had an abortion and (2) to explore individual, social, relational and decision-making explanatory factors for (mal)adjustment in each group. Given the lack of research specifically addressing these two goals, we did not establish hypotheses for them.

Method

Procedure and Participants

This cross-sectional study is part of a wider project entitled 'Abortion by women's request in Portugal: Reproductive decisions and psychosocial adjustment in different reproductive phases'.

The sample was collected between September 2013 and August 2015 at 16 healthcare services that perform abortions. The study was conducted under the approval of the respective Research Ethics Committees. The inclusion criteria were as follows: (1) women who had an abortion upon request and (2) women who were able to understand and answer the research questionnaires.

Women were invited to participate in the study by healthcare providers after the decision to perform the abortion was made. The women were informed of the study goals, and those who agreed to participate were provided written informed consent. For participants younger than 16 years of age (the age when adolescents no longer require parental/legal guardian consent to terminate a pregnancy; AR, 2007), the consent form was also signed by their legal guardians. Women were instructed to complete the self-report questionnaires during the week of their post-abortion follow-up appointment (approximately two to three weeks after the abortion) and to return them in a sealed envelope without identification.

Using a non-probabilistic convenience sampling method, 425 women were recruited. Participants were excluded if data for the study variables were missing ($n = 153$, 95 adolescents and 58 adult women; 36.0%). The final sample comprised 272 women who had had an abortion, specifically 177 adolescents (65.1%) and 95 adult women (34.9%). Table 1 summarises the descriptive statistics for the variables and their comparison by age group.

Table 1 | Descriptive statistics for all variables in study: adolescents and adult women who had an abortion, and comparison between age groups

	Adolescents (<i>n</i> = 177)	Adult Women (<i>n</i> = 95)	$\chi^2(V)/ t(d)$
Age			
<i>M</i> (<i>SD</i>)	17.31 (1.32)	27.97 (7.41)	-13.90(.71)***
Range	14-19	20-43	
Ethnic origin, <i>n</i> (%)			
European ethnic origin	153 (89.5)	75 (78.9)	
Non-European ethnic origin	18 (10.2)	11 (11.6)	0.29
Missing	6 (3.4)	9 (9.5)	
Marital status ^a , <i>n</i> (%)			
Single/Divorced	165 (93.2)	54 (56.8)	
Married/living with a partner	12 (6.8)	41 (43.2)	52.15(.44)***
Socioeconomic status ^b , <i>n</i> (%)			
Low	115 (65.0)	44 (46.3)	
Medium/High	62 (35.0)	51 (53.7)	8.86(.18)**
Place of residence ^c , <i>n</i> (%)			
Urban	131 (74.0)	69 (72.6)	
Rural/Suburban	40 (22.6)	23 (24.2)	0.09
Missing	6 (3.4)	3 (3.2)	
Occupation, <i>n</i> (%)			
Student	155 (87.6)	26 (27.4)	
Employed	7 (4.0)	46 (48.4)	
Unemployed	14 (7.9)	19 (20.0)	104.97(.63)***
Missing	1 (0.6)	4 (4.2)	
Educational level (years in school), <i>n</i> (%)			
1-4 years	0 (0.0)	1 (1.1)	
5-6 years	2 (1.1)	1 (1.1)	
7-9 years	41 (23.2)	15 (15.8)	35.63(.39)***
10-12 years	87 (49.2)	31 (32.6)	

≥ 13 years	15 (8.5)	36 (37.9)	
Missing	32 (18.1)	11 (11.6)	
Have children, <i>n</i> (%)			
No	175 (98.9)	56 (58.9)	76.97(.53)***
Yes	2 (1.1)	39 (41.1)	
Previous induced abortions, <i>n</i> (%)			
No	165 (93.2)	74 (77.9)	13.62(.22)***
Yes	12 (6.8)	21 (22.1)	
Gestational age (weeks)			
<i>M</i> (<i>SD</i>)	7.05 (1.49)	7.09 (1.43)	-0.17
Range	4-10	4-10	
Induced abortion procedure, <i>n</i> (%)			
Medical	148 (83.6)	88 (92.6)	
Surgical	26 (14.7)	7 (7.4)	3.28
Missing	3 (1.7)	0 (0.0)	
Religious Beliefs, <i>n</i> (%)			
No	63 (35.6)	40 (42.1)	1.14
Yes	114 (64.4)	55 (57.9)	
Support from the mother			
<i>M</i> (<i>SD</i>)	3.64 (1.54)	4.01 (1.36)	-2.02(.13)*
Range	0-5	0-5	
Support from the partner			
<i>M</i> (<i>SD</i>)	3.87 (1.53)	3.84 (1.64)	.14
Range	0-5	0-5	
Desire for pregnancy, <i>n</i> (%)			
No	153 (86.4)	88 (92.6)	2.35
Yes	24 (13.6)	7 (7.4)	

Ambivalence toward the decision, <i>n</i> (%)			
No	109 (61.6)	59 (62.1)	.01
Yes	68 (38.4)	36 (37.9)	
Concealing the decision to terminate the pregnancy from family, <i>n</i> (%)			
No	58 (32.8)	47 (49.5)	7.28(.16)**
Yes	119 (67.2)	48 (50.5)	
Feelings of being pressured to terminate pregnancy, <i>n</i> (%)			
No	147 (83.1)	81 (85.3)	0.22
Yes	30 (16.9)	14 (14.7)	
Satisfaction with the abortion decision			
<i>M (SD)</i>	3.82 (1.91)	3.45 (2.04)	1.50
Range	1-7	1-7	

Note. ^a Marital Status was coded as single/divorced and Married/living with a partner because the divorced category only contained 3 (1.1%) women. ^b Socioeconomic status (SES) was derived from the educational level and occupation of the family's main provider, according to Portuguese standard procedures (i.e., low (e.g., non-specialized workers), medium (e.g., small business owners, high school teachers) and high (e.g., governmental or private companies' administrators, lawyers), Simões, 1994). For married women, SES was derived through the analysis of the SES of both partners. In case of discrepancy between the SES of both partners, the highest SES was used. Because the high SES category only contained 15 (5.5%) women, this variable was coded as low or medium/high. ^c Place of residence was assessed with the question "Where do you live (location)?" and was classified as 0 = urban (population density exceeding 500 inhabitants/km²) and 1 = rural/suburban (population density less than 500 inhabitants/km²; National Institute of Statistics [NIS], 2009).

* $p < .05$. ** $p < .01$. *** $p < .001$.

Measures

Data were obtained through a self-report questionnaire that the researchers developed for this project with open- and closed-ended questions. Individual, social and relational questions were adapted from the clinical assessment interview for pregnant adolescent patients of the Psychological Intervention Unit of the Maternity Daniel de Matos, HUC (Araújo Pedrosa, Canavarro, & Pereira, 2003). This clinical assessment interview was pilot-tested and adjusted to ensure clarity, comprehension and suitability (Canavarro, 2001). Additional questions on decisional process about terminating the pregnancy were based on literature review.

Individual variables. Age, ethnic origin, marital status, socioeconomic status (SES), place of residence, occupation, educational level and clinical variables (i.e. have children, previous abortion, gestational age and abortion procedure).

Social variables. Religious beliefs were assessed with the yes/no question 'Do you have any religious beliefs?'

Relational variables. Satisfaction with social support from the mother and from the partner was assessed with the question 'To what extent do you feel satisfied with the support you receive from your mother/partner?' Answers were scored on a six-point scale ranging from 0 (*Not at all satisfied*) to 5 (*Extremely satisfied*).

Decision-making variables. The desire for pregnancy, the woman's ambivalence toward the decision (i.e. considering both reproductive decisions, terminating vs. continuing the pregnancy), concealing the decision to terminate the pregnancy from the family and feelings of being pressured to terminate the pregnancy were assessed with yes/no questions. Satisfaction with the abortion decision was assessed with the question 'To what extent was a sense of satisfaction present?' Answers were scored on a seven-point scale ranging from 1 (*Non-existent*) to 7 (*Fully present*).

Outcome variables

Depressive symptoms were assessed using the Portuguese version of the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987; Portuguese version: Augusto, Kumar, Calheiros, Matos, & Figueiredo, 1996; Figueiredo, 1997). This measure includes 10 items assessing the presence of depressive symptoms during the previous seven days. Items were scored on a four-point scale ranging from 0 (*No, never*) to 3 (*Yes, almost always*). A global score was obtained by summing the scores of all items. The EPDS has primarily been used to screen depressive symptoms during the postnatal period. However, because it contains no items specifically related to motherhood, it has also been used for the non-postnatal period (Cox, Chapman, Murray, & Jones, 1996). A score higher than 9 indicates the possible presence of a major depressive episode

(Figueiredo, 1997). The Portuguese version of the EPDS showed good internal consistency (Cronbach's alpha = .85) and test-retest reliability ($r = .75$). For our sample, the Cronbach's alpha for the scale was .86 for adolescents and .90 for adult women.

The Portuguese version of the EUROHIS-QOL-8 (Power, 2003; Portuguese version: Pereira, Melo, Gameiro, & Canavarro, 2011) was used to assess the QoL. The EUROHIS-QOL-8 is an eight-item measure scored on a five-point scale ranging from 1 (*Not at all*) to 5 (*Completely*). The psychological, physical, social and environmental domains are each represented by two items. The overall QoL score is obtained by summing the scores of all items. Higher scores indicate a better QoL. Adequate internal consistency values were obtained using the Portuguese version of the psychometric study (Cronbach's alpha = .83, test-retest reliability ($r = .73$); Pereira et al., 2011). For our sample, the Cronbach's alpha was .80 for adolescents and .85 for adult women.

Data analysis

All data analyses were conducted using the Statistical Package for the Social Sciences (SPSS), Version 22.0. Descriptive statistics (means, standard deviations, and frequencies) and comparison tests (t -tests and chi-squared tests) were computed for characterisation purposes.

To address our first research aim, multivariate analyses of variance (MANOVA) were conducted to assess mean differences in the depressive symptoms and the QoL between age groups. Sociodemographic and clinical variables were not included as covariates because they reflected expected group differences. Preliminary assumption testing was conducted (normality and multicollinearity). Although the dependent variables did not present a normal distribution, the sample size is large and MANOVA is sufficiently robust to violation of normality (Field, 2009). To address our second research aim, hierarchical regression analyses (method enter) were performed to assess the explanatory role of individual, social, relational and decision-making factors on depressive symptoms and QoL. Prior to conducting the regression analyses, correlations between the main study variables and the outcomes were determined for both age groups to select the appropriate variables for introduction into the regression models. The correlation coefficients that were significant in at least one of the groups were converted into Z -Fisher scores (Preacher, 2002) and were compared between groups. If no difference was found, the variables were introduced into both regressions. The predictor variables were entered in blocks into the regression equation to examine the additional explained variance of each block. The regression analyses were separately conducted for adolescents and adult women and for each dependent variable. The assumptions underpinning the data analysis were tested (i.e. multicollinearity, normality, linearity, homoscedasticity, and independence of residuals) and none of them was violated.

Results

Differences in depressive symptoms and QoL between adolescents and adult women

As Table 2 shows, a significant multivariate effect was found [Pillai's Trace = 0.023, $F_{(1,272)} = 3.195$, $p = .043$, $\eta_p^2 = .02$]. However, the following univariate analyses revealed a non-significant effect for depressive symptoms [$F_{(1,272)} = .075$, $p = .78$, $\eta_p^2 = .00$] and QoL [$F_{(1,272)} = 3.777$, $p = .053$, $\eta_p^2 = .01$]. Adolescents and adult women did not differ in depressive symptoms and QoL. However, both groups scored higher than 9, which could suggest depressive symptoms.

Table 2 | Group means, standard deviations and univariate analyses of variance for depressive symptoms and QoL

Variables	Adolescents ($n = 177$)		Adult Women ($n = 95$)		$F_{(1,272)}$	η_p^2
	M	SD	M	SD		
Depressive symptoms	11.27	5.76	11.06	6.33	0.08	.00
QoL	68.63	14.06	64.93	16.46	3.78	.01

Note. M = mean; SD = standard deviation. ^a Effect sizes were interpreted based on the recommendations of Field (2009): small: $\eta_p^2 \geq .01$; medium: $\eta_p^2 \geq .06$; large: $\eta_p^2 \geq .14$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Preliminary analysis: associations between study variables and depressive symptoms and QoL

Pearson's correlations for the study variables are presented in Table 3. In the adolescent group, the desire for pregnancy, ambivalence in the decision-making process, and feelings of being pressured into abortion were positively associated with depressive symptoms and negatively associated with QoL. Support from the mother and from the partner and satisfaction with the abortion decision were positively associated with QoL, and the latter was negatively associated with depressive symptoms. In the adult women group, support from the partner and satisfaction with the abortion decision were negatively associated with depressive symptoms, and the former was positively associated with QoL. Marital status, SES, having children and religious beliefs were not significantly correlated with depressive symptoms or QoL in either age group. Thus, only relational and decision-making variables associated with the dependent variables at the 0.05 level in the previous analyses were included in the regression models.

Table 3 | Bivariate pearson's correlations among study variables and comparison between age groups

	Depressive Symptoms				QoL			
	Total Sample (n = 272)	Adolescents (n = 177)	Adult Women (n = 95)	Z-score ^j	Total Sample (n = 272)	Adolescents (n = 177)	Adult Women (n = 95)	Z-score ^j
1. Marital Status ^b	.02	.01	.04	-.23	-.13*	-.03	-.13	.78
2. Socioeconomic Status ^c	.05	.05	.08	-.23	-.07	-.06	-.03	-.23
3. Have children ^d	.02	.05	.04	.08	-.10	-.01	-.08	.54
4. Religious Beliefs ^e	.04	.01	.09	-.62	-.03	.04	-.14	1.4
5. Support from the mother	-.13*	-.12	-.13	.08	.15*	.20**	.12	.64
6. Support from the partner	-.14*	-.09	-.21*	.95	.20**	.18*	.24*	-.49
7. Desire for Pregnancy ^f	.20**	.21**	.20	.08	-.11	-.16*	-.07	-.71
8. Ambivalence toward the decision ^g	.18**	.20**	.14	.48	-.14*	-.21**	-.04	-1.34
9. Feelings of being pressured to terminate pregnancy ^h	.24***	.33***	.10	1.88	.19**	-.25**	-.11	-1.12
10. Satisfaction with the abortion decision	-.37***	-.38***	-.37***	-.09	.24**	.27***	.18	.74
11. Concealing the decision to terminate the pregnancy from family ⁱ	-.02	.02	-.09	0.86	.05	.00	.07	-.54

Note. ^a 0 = Adolescent; 1 = Adult women. ^b 0 = Single/Divorced; 1 = Married/cohabitation. ^c 0 = Low; 1 = Medium/high. ^d 0 = No; 1 = Yes ^e 0 = None; 1 = Catholic/Other. ^f 0 = No; 1 = Yes. ^g 0 = No; 1 = Yes. ^h 0 = No; 1 = Yes. ⁱ 0 = No; 1 = Yes. ^j Test of the difference between the correlation coefficients of the age groups.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Relational and decision-making influences on depressive symptoms and QoL

Main effects model for depressive symptoms

The regression models for depressive symptoms were significant (see Table 4). No evidence of multicollinearity was detected. In the adolescent group, the main effects model explained 22% of the variance in depressive symptoms. Feelings of being pressured into abortion ($p = .002$) and lower satisfaction with the abortion decision ($p < .001$) were significantly associated with depressive symptoms. In the adult women group, the main effects model explained 14% of the variance in depressive symptoms. Lower satisfaction with the abortion decision ($p = .003$) was significantly associated with depressive symptoms (Table 4).

Main effects model for QoL

The regression model for QoL was significant for only the adolescent group (see Table 5). No evidence of multicollinearity was detected. In the adolescent group, the main effects model explained 11% of the variance in QoL. Lower support from the mother ($p = .017$), feelings of being pressured into abortion ($p = .043$) and lower satisfaction with the abortion decision ($p = .013$) were significantly associated with lower QoL. Regarding the adult women group, the main effects model was not significant, and none of the variables were significantly associated with QoL (Table 5).

Table 4 | Hierarchical regression predicting depressive symptoms in adolescents and adult women who had an abortion

Variables	Adolescents						Adult women					
	Step 1: Relational effects			Step 2: Decision-making effects			Step 1: Relational effects			Step 2: Decision-making effects		
	$F_{(1, 175)} = 1.54$			$\Delta R^2 = .22,$			$F_{(1, 93)} = 4.35^*$			$\Delta R^2 = .14,$		
	$R^2 = .01$			Main effects model			$R^2 = .05$			Main effects model		
				$F_{(5, 171)} = 9.90^{***}$						$F_{(5, 89)} = 3.89^{**}$		
				$R^2 = .23$						$R^2 = .18$		
	<i>B</i>	β	<i>t</i>	<i>B</i>	β	<i>t</i>	<i>b</i>	β	<i>t</i>	<i>b</i>	β	<i>t</i>
Constant	12.63		10.71***	14.78		9.52***	14.20		8.70***	16.65		8.23***
Support from the partner	-.35	-.09	-1.24	-.25	-.07	-.95	-.82	-.21	-2.09*	-.66	-.17	-1.75
Desire for Pregnancy ^a				2.24	.13	1.93				3.01	.13	1.25
Ambivalence toward the decision ^b				.13	.01	.15				.45	.04	.35
Feelings of being pressured to terminate pregnancy ^c				3.42	.22	3.08**				-.41	-.02	-.23
Satisfaction with the abortion decision				-.91	-.30	-4.18***				-.98	-.32	-3.06**

Note. $n = 272$. ^aReference group: 0 = No. ^bReference group: 0 = No. ^cReference group: 0 = No

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5 | Hierarchical regression predicting QoL in adolescents and adult women who had an abortion

Variables	Adolescents						Adult Women					
	Step 1: Relational effects			Step 2: Decision-making effects			Step 1: Relational effects			Step 2: Decision-making effects		
	$F_{(2, 174)} = 6.06^{**}$			$\Delta R^2 = .11,$			$F_{(2, 92)} = 3.00$			$\Delta R^2 = .03,$		
	$R^2 = .07$			Main effects model			$R^2 = .06$			Main effects model		
				$F_{(6, 170)} = 6.18^{***}$						$F_{(6, 88)} = 1.40$		
				$R^2 = .18$						$R^2 = .09$		
	<i>B</i>	β	<i>t</i>	<i>B</i>	β	<i>t</i>	<i>b</i>	β	<i>t</i>	<i>b</i>	β	<i>t</i>
Constant	57.00		16.24 ^{***}	55.21		12.88 ^{***}	53.05		8.92 ^{***}	51.01		7.64 ^{***}
Support from the mother	1.66	.18	2.44*	1.55	.17	2.41*	.81	.07	.64	.68	.06	.52
Support from the partner	1.45	.16	2.13*	1.24	.14	-1.89	2.25	.22	2.17*	2.04	.20	1.93
Desire for Pregnancy ^a				-3.70	-.09	-1.26				-1.23	-.02	-1.19
Ambivalence toward the decision ^b				-2.29	-.08	-1.05				.50	.02	.14
Feelings of being pressured to terminate the pregnancy ^c				-5.70	-.15	-2.04*				-3.06	-.07	-1.61
Satisfaction with the abortion decision				1.39	.19	2.51*				1.08	.13	1.20

Note. *n* = 272. ^aReference group: 0 = No. ^bReference group: 0 = No. ^cReference group: 0 = No

* *p* < .05. ** *p* < .01. *** *p* < .001.

Discussion

Overall, our findings suggest that although adolescents are not at a greater risk of maladjustment than adult women (Pedersen, 2008; Pope et al., 2001; Quinton et al., 2001; Renner et al., 2014; Warren et al., 2010), abortion may be an emotionally significant event for both age groups (Fergusson et al., 2006; Pedersen, 2008; Rousset et al., 2011). However, longitudinal studies are necessary to clarify the permanence of psychosocial effects over time. Moreover, consistent with an ecological perspective (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998; Coleman et al., 2005), our study suggested that psychosocial adjustment may be predicted by variables corresponding to the different contexts of women's lives. Specifically, our findings show that the psychosocial adjustment after abortion was mostly predicted by relational variables (Cameron, 2010) and some decision-making process characteristics (Broen et al., 2005; Franz & Reardon, 1992; Major et al., 2000; Ralph et al., 2014). These findings also suggest that specific variables should be considered based on the age group.

In the adolescent group, the relational variables, particularly support from the mother, play a significant role in adolescents' well-being (Cameron, 2010; Ralph et al., 2014). Given that mothers typically assume the role of the main caregiver (Katz-Wise, Priess, & Hyde, 2010), they may provide an important source of support for adolescents' decision-making. When adolescents are not supported by their parents, they are less satisfied with their abortion decision (Ralph et al., 2014). These non-supportive attitudes may be related to pressure to terminate the pregnancy. Thus, adolescents may not perceive that they are making the abortion decision independently (Broen et al., 2005), which can be associated with their lower satisfaction with the decision (Ralph et al., 2014). Furthermore, feelings of being pressured into abortion may be related to the fact that most of the adolescents were single, students, and financially dependent on their families, as well as the social undesirability of a pregnancy at this developmental stage when education is prioritised over parental life (Sihvo, Bajos, Ducot, & Kaminski, 2003).

In the adult women group, psychosocial adjustment was mostly predicted by decision-making process characteristics and particularly by lower satisfaction with the abortion decision. Unlike the adolescent group, satisfaction with the abortion decision may be related to social class, which prioritises the establishment of a career and may suggest that the time is not right to have a child (Sihvo et al., 2003). Nevertheless, further research is required to identify the most important reasons for terminating a pregnancy to help explain why adolescents and adult women are dissatisfied with their decisions.

Our results show that other relational variables, such as support from the partners of both adolescents and adult women, does not predict psychosocial adjustment (Guedes, 2008). However, further investigation is required to clarify the decision-making process for abortion, the explanatory role of this support and the influence of significant others.

Implications for clinical practice

Our findings have important implications for practice and research related to preventive interventions for (mal)adjustment after abortion. Overall, our results support the perspective that abortion may be an emotionally significant event in a woman's life and that the psychosocial adjustment of women after abortion is a complex and multidimensional process (Coleman et al., 2005; Curley & Johnston, 2013; Major et al., 2009; Steinberg & Finer, 2011). In fact, psychosocial adjustment seems to be predicted by variables from different ecological domains of women's lives and these predictors vary by age group. As such, preventive interventions should adopt a systematic and ecological approach and should be sensitive to a woman's age.

Our results highlight the importance of an informed decision-making process to prevent maladjustment after abortion. In European countries, different policies and practices regarding mandatory waiting periods and pre-abortion counselling have been applied. Portuguese law imposes a mandatory pre-abortion consultation, in which healthcare providers should support and provide information in accordance with women's needs in order to facilitate their decision. The law also states a period of reflection of at least three days before abortion. Moreover, healthcare services that perform abortions should provide the possibility for requesting psychological or/and social support (AR, 2007). Considering that the contact with psychologists is restricted, unless it is requested by women, the need to promote a multidisciplinary care is of major importance. In fact, our results draw attention to the need for healthcare providers to be aware of the potential explanatory factors of maladjustment after abortion. The implementation of developmentally adapted screening at pre-abortion counselling could be useful to identify adolescents who feel pressured into abortion or who receive low support from their mothers, and adolescents and adult women who are less satisfied with their decision, and refer them for specialised interventions. Providing additional psychological counselling could be useful to improve an informed decision-making process and prevent maladjustment after abortion. Regarding women who feel pressured into abortion, it would be important to identify sources of pressure and how they have been coerced to this reproductive decision.

Moreover, most European countries' laws stipulate that minors need parental authorization for abortion or at least one of the parents should be informed (Silva et al., 2011). Although only adolescents younger than 16 years of age require parental/legal guardian consent to terminate a pregnancy in Portugal (AR, 2007), our results show the key role of relational context in adolescents' well-being. Thus, healthcare providers should also promote the involvement and support of adolescents' mothers during the decision-making process and after abortion.

This clinical approach may be useful for assessing, screening and referring women to promote an informed decision-making process and for preventive interventions for (mal) adjustment after abortion.

Limitations and strengths

The first limitation, although typical for psychological studies (Cohen, 1992), is that post-hoc power calculations demonstrated that the achieved sample size allowed for the detection of mainly medium to large effects. Furthermore, although a statistical multivariate effect of age group on psychosocial adjustment was found, our findings should be interpreted carefully. Given the unequal sample size across the two groups, univariate analyses for depressive symptoms and QoL may not have detected differences. Additional research is thus required to replicate our analysis with a larger sample. The cross-sectional nature of this study should also be considered in generalising the results. A longitudinal approach would clarify the temporal stability of the psychosocial effects. Moreover, it is important to include a baseline measure of mental health in pre-abortion appointments. However, the conditions for data collection were restricted by requirements of anonymity and confidentiality, so we could not directly access participants and establish contact before or after abortion. Furthermore, the assessment of predictor variables was based on single-item measures, which could not fully capture their complexity. Further studies should consider using more comprehensive measures to assess these variables. Finally, because the data were collected at multiple Portuguese health services and several healthcare providers were involved in the sample collection, we could not obtain complete information regarding how many women refused to participate. However, based on the discrepancy between the total number of our sample and the total number of abortions (DGH, 2015) during the time period when the study was conducted, we infer that the refusal rate was high.

Despite these limitations, our study has several strengths that make it an important contribution to existing research. This is the first study in Portugal to explore women's psychosocial adjustment and related explanatory factors by considering differences in reproductive age. Moreover, certain methodological choices surmounted the important limitations present in the previous research. First, to counter the tendency to evaluate only negative outcomes after abortion, our study included a measure of well-being (QoL) after abortion. Second, we adopted an ecological approach (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998; Coleman et al., 2005), whereby we considered different domains of women's lives and decision-making process variables that may predict psychological adjustment after abortion. Third, in contrast to most studies that have analysed the psychosocial adjustment of women who have had an abortion by treating the group as a whole, the differences in psychosocial adjustment between adolescents and adult women were explicitly considered in this study by analysing these age groups separately.

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