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Induced abortion and traumatic stress: A preliminary comparison of American and Russian women

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A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

Vincent M. Rue[1 ABCDEFG], Priscilla K. Coleman[2 CDEF], James J. Rue[3 AEF], David C. Reardon[4 CDEF]

[1] Institute for Pregnancy Loss, Jacksonville, FL, U.S.A.
[2] Human Development and Family Studies, Bowling Green State University, Bowling Green, OH, U.S.A.
[3] Sir Thomas More Clinic, Downey, CA, U.S.A.
[4] Elliot Institute, Springfield, IL, U.S.A.

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Summary

Background: Individual and situational risk factors associated with negative postabortion psychological sequelae have been identified, but the degree of posttraumatic stress reactions and the effects of culture are largely unknown.

Material/Methods: Retrospective data were collected using the Institute for Pregnancy Loss Questionnaire (IPLQ) and the Traumatic Stress Institute's (TSI) Belief Scale administered at health care facilities to 548 women (331 Russian and 217 American) who had experienced one or more abortions, but no other pregnancy losses.

Results: Overall, the findings here indicated that American women were more negatively influenced by their abortion experiences than Russian women. While 65% of American women and 13.1% of Russian women experienced multiple symptoms of increased arousal, re-experiencing and avoidance associated with posttraumatic stress disorder (PTSD), 14.3% of American and 0.9% of Russian women met the full diagnostic criteria for PTSD. Russian women had significantly higher scores on the TSI Belief Scale than American women, indicating more disruption of cognitive schemas. In this sample, American women were considerably more likely to have experienced childhood and adult traumatic experiences than Russian women. Predictors of positive and negative outcomes associated with abortion differed across the two cultures.

Conclusions: Posttraumatic stress reactions were found to be associated with abortion. Consistent with previous research, the data here suggest abortion can increase stress and decrease coping abilities, particularly for those women who have a history of adverse childhood events and prior traumata. Study limitations preclude drawing definitive conclusions, but the findings do suggest additional cross-cultural research is warranted.

key words: **abortion • trauma • posttraumatic stress disorder • psychological sequelae • women's reproductive health**

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Author's address: Vincent M. Rue, Institute for Pregnancy Loss, 1574 Scottridge Lane, Jacksonville, FL 32259, U.S.A., e-mail: vincerue@bellsouth.net

BACKGROUND

Beyond politics, increasing public health concern is focusing on the adverse emotional outcomes women can experience following abortion [1–15]. Researchers on both side of the abortion debate agree that some women's mental health is negatively impacted by abortion and that more investigation is warranted to better assist those women and to prevent future harm to others.

Extensive research has documented how traumatic stress can significantly alter individuals' lives [16]. Traumatic stressors are strong predictors of PTSD. While the lifetime prevalence of PTSD has been estimated to be up to 12% of U.S. women [17], limited research has examined the role of induced abortion as a traumatic stressor.

Anxiety and depression have long been associated with induced abortion [18]. In a major review of the literature, anxiety symptoms were identified as the most common adverse postabortion response [19]. As an anxiety disorder, posttraumatic stress disorder (PTSD) can be identified with an overwhelming and life-threatening event and with an inability to process the trauma. Earlier research reported a connection between experiencing a traumatic abortion and the onset of posttraumatic stress related symptoms [20–24]. These studies were limited due to their reliance upon either case studies or small samples, with the exception of one larger study that reported a 1% incidence of PTSD following abortion [25]. The present study focused on the degree to which induced abortion was associated with posttraumatic stress and whether or not posttraumatic responses following abortion were evident in another culture.

Women's psychological responses to abortion are likely influenced by complex socio-cultural factors. In some nations the social environment surrounding abortion is defined by strong moral sanctions against it; whereas in other parts of the world abortion is a passively accepted medical practice. The present study represents an exploratory comparison of abortion reactions of American and Russian women. The comparison of these two groups is especially interesting because abortion continues to be a highly charged political issue in the United States since its legalization in 1973, while there has been very little political controversy about abortion in Russia following its legalization in 1955. For many years, Russian women have used abortion as one of their principle means of birth control due to the relative scarcity of other birth control options; although more restrictive policies are emerging [26–28].

Some research has suggested that PTSD is not just limited to Euro-Americans [29]. However, assessment of PTSD symptoms may vary widely due to ethnocultural influences [30–32]. While there is some evidence of PTSD following abortion in the U.S. [20–24], no equivalent research has been conducted with Russian women. Hence, the primary purpose of this research was to examine whether or not abortion was perceived as traumatic, and if so, whether or not its manifestations were equivalent to PTSD symptoms in both American and Russian women. The secondary purposes of this research included identifying demographic and pregnancy circumstances most predictive of possible negative outcomes, as well as evaluating the extent to which negative responses could be due to cultural factors, rather than individual characteristics in American and Russian women.

MATERIAL AND METHODS

Participants

Women who had experienced a pregnancy loss (spontaneous abortion, induced abortion, stillbirth, or adoption) were asked to participate in a study of women's reactions to a pregnancy loss. Data were collected in 1994 at U.S. and Russian healthcare facilities (public and private hospitals, and health care clinics). All women between the ages of 18 and 40 were surveyed on a continuous basis until 992 women with at least one pregnancy loss had been identified. The sample used in the current study includes only those women who had one or more induced abortion and no miscarriages, stillbirths, or adoptions (n=548 or 55.2% of the larger sample). If multiple abortions were reported, the respondent was asked to identify and only report on the "most stressful" one. As to nationality, the sample used in the current study included 331 Russian and 217 American women.

At the time of their reported abortion experience, the mean age of the Russian women was 22.11 (SD=5.80) and for the American women, the mean age was 23.07 (SD=5.71). The mean age at the time the women completed the questionnaire was 28.24 (SD=9.67) for the Russians and 33.86 (SD=8.85) for the American. Among Russian women, the mean number of weeks pregnant at the time of the abortion was 6.75 (SD=3.19); whereas among the American women, the mean number of weeks pregnant was 10.07 (SD=4.55).

Procedure

Data were collected at one urban hospital in Russia and one urban hospital and two medical outpatient clinics in the United States. At the Russian national hospital, which specialized in women's health, all women seeking health care were asked by a staff physician to participate in the research. After several consultations with Russian physicians and demographers, as well as piloting the Russian version of the IPLQ, it was determined that the optimum form of data collection to ensure completeness and patient comprehension was to have staff doctors interview the patient/respondents. The considerable difficulty in translating the avoidance criteria of PTSD into Russian and concern regarding patient comprehension motivated the use of interviews as opposed to questionnaires in Russia. The participating Russian physicians were trained on the research purposes and particulars of using the IPLQ as an interview guide. Mental health facilities were purposefully excluded as data collection sites to prevent the selection of subjects from a "pathology-oriented" population.

In the U.S, each subject completed a written questionnaire. A study monitor at each of the three data collection sites was available to respond to any questions or concerns. In Russia, a staff physician interviewed each female patient and completed the questionnaire on her behalf in order to minimize cross-cultural misinterpretations of question wording. In all cases, respondents were informed of the following: (1) that their participation in the research was voluntary; (2) that all

responses were anonymous; (3) that they had the right to refuse participation and that non-participation would not influence their healthcare; (4) that they had the right to discontinue participation in the research at any point; and (5) that counseling was available afterwards if so requested. The administration time was 15 to 20 minutes. Due to funding and staff limitations, no data were collected on women who chose not to participate.

Measures

The two data collection instruments used were the Institute for Pregnancy Loss Questionnaire (IPLQ) and the standardized Traumatic Stress Institute's (TSI) Belief Scale - Version K originally developed by Pearlman [33]. The scale was subsequently revised to Version L [34] and has now been renamed the Trauma & Attachment Belief Scale [35,36]. A university-based human subjects review panel approved the use of the IPLQ and it was pre-tested using college age students.

The IPLQ included two major sections. The first section included demographic and background information. The latter included questions related to likely control variables including stressors that might pre- or postdate the abortion. The second section of the IPLQ presented subjects with a cognitive/emotional/behavioral checklist of positive and negative effects of abortion that had been previously reported in the literature. Subjects were asked to indicate whether or not they had experienced the various responses before and after the abortion, and whether or not they believed the abortion caused the items endorsed. Only those symptoms women specifically attributed to their abortions were reported here.

Items included in the second section of the IPLQ were drawn from a pool of variables identified by experts in the field of pregnancy loss with additional items culled from the research literature. The determination of which items to include was made by a panel of clinician raters for purposes of content validation. Thirty-one items pertaining to possible negative effects met the final selection criteria for inclusion in the cognitive/emotional/behavioral checklist, with 14 of these items indicative of PTSD symptomatology. On the 14-item PTSD scale, Cronbach's alpha was 0.89. Cronbach's alpha for the 17-item negative effects scale (all negative items minus the PTSD symptoms) was 0.87. For the three subscales of the PTSD measure, corresponding to symptoms of arousal (4 items), re-experience (4 items), and avoidance (6 items), Cronbach's alpha coefficients were found to equal 0.67, 0.74. and 0.81 respectively. The fourteen items on this scale correspond to the 14 symptoms of PTSD outlined in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) [37]. In order to meet the DSM-IV criteria for PTSD diagnosis a person must endorse at least two symptoms of arousal, one re-experiencing symptom, and three avoidance symptoms for at least one month. Four positive outcome items were included as well: relief, improved self-image, improvement in partner relationships, and feeling more in control of one's life. These four items were included both to address response set bias and because they were repeatedly reported in the literature. Cronbach's alpha was found to equal 0.45 for the four-item positive response total scale.

A single item self-report measure of the level of stress experienced as a result of the abortion served as another outcome measure. The range of scores on this item was from 1 to 4, with lower scores indicative of minimal stress and higher scores suggesting overwhelming stress.

In addition to the IPLQ, the standardized Traumatic Stress Institute's (TSI) Belief Scale was employed. The TSI Belief Scale is intended to measure disruptions in beliefs about self and others that can arise from exposure to psychological trauma. The scale consists of 90 items and uses a 6-point Likert scale. The TSI Belief Scale is based on Constructivist Self Development Theory, integrating self psychology, object relations, interpersonal and social cognition theories [38,39]. Internal consistency reliability of the TSI Belief Scale was reported to be 0.98 (Cronbach's alpha). Subscale reliabilities ranged from 0.77 (other-control) to 0.91 (self-esteem); however, only total summed scores were used in this study [33]. The TSI Belief Scale has been used with a variety of populations and has reliably discriminated between trauma survivors and non-trauma survivors [33,34].

RESULTS

Various demographic and psychosocial background variables were assessed. In this sample, as to ethnicity, most of the women from the former Soviet Union identified themselves as Russian (78.2%); in the American sample, 59.4% were white, 24.9% Hispanic, and 10.1% black. Most Russian women worked full-time (63.4%) compared to 34.3% of the women in the American sample. In both cultures, the majority of women worked in the professional/ business sector (62% Russian v. 57.9% American). More Russian women were married (59.1%) compared to American women (49.1%), and Russian women had slightly more years of education than American women (48.9% had 16 years of education v. 42.9%). As to number of children, 52% of Russian women had none compared to 30.4% of American women.

Regarding the psychosocial variables, these data generally suggest that women in the Russian sample perceived their childhoods (8.5% Russian v. 51.6% American) and adolescence (74.2% Russian v. 36.6% American) to be happier than American women. American women were considerably more likely to report being physically or sexually abused before age 18 (42.3% American v. 11.4% Russian). When asked about religious convictions, 63.1% of the Russian sample and 89.4% of the American sample indicated having religious beliefs. The mean rating of the importance of these beliefs was 2.49 (SD=0.73) for the Russian sample and 1.49 (SD=0.71) for the American sample on a scale of 1 to 4, with scores closer to 1 suggesting more importance.

Table 1 contains the descriptive statistics for all the outcome measures for both the Russian and American samples. On a 1 to 4 scale, women in both countries generally reported their abortion experiences as stressful. Overall, when compared to Russian women, American women who chose to abort were more than twice as likely to experience negative psychological effects and report PTSD symptoms of arousal, re-experience, and avoidance, particularly the latter. Russian women only scored higher than American women on the TSI scale.

Table 1. Descriptive statistics for the outcome measures based on nationality.

		Russian (N=331)			American (N=217)		
Variable	**Potential range**	**Observed range**	**M**	**SD**	**Observed range**	**M**	**SD**
Negative effects	0–17	0–15	4.57	3.18	0–17	10.56	3.59
PTSD Total scores	0–14	0–13	3.42	3.21	0–14	8.95	3.84
PTSD Arousal	0–4	0–4	1.13	1.23	0–4	2.29	1.27
PTSD Re-experience	0–4	0–4	1.14	1.17	0–4	2.75	1.39
PTSD Avoidance	0–6	0–6	1.14	1.40	0–6	3.92	1.76
Disruption in cognitive schemas (TSI total scores)	90–540	115–383	274.61	38.33	127–399	258.65	56.57
Self-reported stress associated with the abortion	1–4	1–4	2.85	0.69	1–4	3.34	0.77
Positive effects after abortion	0–4	0–3	0.71	0.84	0–4	0.88	1.04

Table 2. Zero-order correlations reflecting associations between particular psychosocial stressors and outcome measures based on nationality (Russian data in bold).

	Harshly disciplined as a child	**Abused as a minor**	**Parents divorced before 18**	**Unwanted Sexual contact before 18**	**Sexually abused by relative before age 18**	**Raped after age 18**	**Physically or emotionally abused after 18**
Self-reported stress	**0.03** 0.04	**0.01** 0.08	**0.03** 0.12	**0.12*** –0.04	**0.13*** –0.06	**0.01** 0.10	**0.01** 0.00
TSI scores	**0.07** 0.10	**0.02** 0.05	**0.10** 0.01	**0.03** 0.11	**0.12** 0.01	**0.09** 0.18*	**0.15*** 0.14*
Negative effects Total scores	**0.13*** 0.01	**0.08** 0.04	**0.07** 0.06	**0.16**** 0.06	**0.16**** 0.04	**0.22**** 0.01	**0.28**** 0.01
PTSD Total scores	**0.16**** 0.00	**0.07** 0.04	**0.11** 0.05	**0.11** 0.06	**0.01** 0.03	**0.21**** 0.04	**0.27**** 0.01

* $p<0.05$;
** $p<0.0l$.

Table 2 provides zero-order correlations reflecting associations between particular psychosocial stressors and outcome measures based on nationality. Table 3 provides zero-order correlations among all the outcome measures conducted separately for the two samples. Significant correlations were detected between PTSD symptoms (total and subscale scores) and the other measures of negative effects in both samples. In addition, the subscales of the PTSD measure were significantly intercorrelated with data collected from the Russian and American samples.

Table 4 contains descriptive data for all the abortion context variables. In both countries, women perceived abortion as morally wrong in equal proportion. More Russian women than American women felt prepared for their abortion in that they were counseled on alternatives, felt the counseling they received was adequate, and found their partner was supportive. On the other hand, more American women in this sample versus Russian women felt they needed more time to make their decision, felt pressured by others to abort, and were less sure of their decision at the time of the abortion.

Table 5 presents both positive and negative outcomes following abortion which were unrelated to PTSD. As for positive outcomes, few women in either country felt relief or more in control of their lives after their abortion; fewer still experienced relationship improvement or enhanced self-esteem after the procedure. On the other hand, the majority of women in both countries felt badly following their abortions, including feeling considerable guilt. American women were almost twice or more likely than their Russian counterparts to have sexual problems, overprotect their children, experience suicidal thoughts, report difficulty at work,

Table 3. Zero-order correlations among the outcome measures based on nationality (Russian data above the diagonal and American data below the diagonal).

	1	2	3	4	5	6	7
1. Self-reported stress associated with the abortion		0.25**	0.29**	0.30**	0.13*	–0.04	0.10
2. Negative effects after abortion	0.14*		0.71**	0.65**	0.61**	0.14*	0.41**
3. PTSD Arousal	0.04	0.68**		0.60**	0.55**	0.15**	0.40**
4. PTSD Re-experience	0.07	0.64**	0.63**		0.56**	0.08	0.47**
5. PTSD Avoidance	0.16*	0.70**	0.66**	0.61**		0.09	0.28**
6. Disruption in cognitive schemas (TSI total scores)	–0.01	0.31**	0.32**	0.25**	0.31**		–0.01
7. Positive effects after abortion	–0.19**	0.07	0.03	–0.006	0.01	–0.07	

* p<0.05;
** p<0.0l.

Table 4. Single item frequencies for the abortion circumstance variables and the outcome measures based on nationality.

	Russian (N=331)			American (N=217)		
Abortion-related variables	**Percent "yes"**	**Percent "no"**	**Percent "unsure"**	**Percent "yes"**	**Percent "no"**	**Percent "unsure"**
Desired pregnancy	14.8	71.1	14.2	17.7	76.7	11.6
Pregnancy desired by partner	14.6	56.4	29	14	71.2	14.9
Received counseling beforehand	64	34.7	1.3	29.4	66.8	3.8
Needed more time to make decision	33.3	54.5	12.2	51.9	32.4	15.7
Counseled on alternatives	48.8	45.1	6.1	17.5	79.2	3.3
Felt pressured by others	37.2	54.9	7.9	64	28.5	7.5
Felt abortion was morally wrong	50.5	35.7	13.8	50.7	19.2	30
Had health complications afterwards	21.4	60.9	17.8	30.5	62.6	6.7
Believed in a woman's right to have an abortion	79	6.2	14.8	40.1	26.4	33.5
Received adequate counseling beforehand	63.4	30.5	6.0	10.8	84	5.2
Partner was supportive	50.7	41.1	8.3	23.8	64.3	11.9
Parents involved in the decision making	27.1	70.3	2.6	19.7	78.4	1.9
Parental involvement was helpful	23.1	72.6	4.3	12.4	79.7	7.9
Was not sure about the decision at the time	38	49.7	12.3	54.2	27.8	17.9
Received counseling afterwards	11.9	88.1	0	21	79	0
Effectiveness of counseling	80.6	19.4	0	78.8	21.2	0
Felt emotionally close or attached to the pregnancy, child	37.2	24	38.8	39.3	24.8	36

Table 5. Percent positive and negative outcomes attributed to abortion by nationality.

	Russian	American
Relationship with partner improved	2.2%	0.9%
Felt better about myself	0.3%	0.9%
Felt relief	6.9%	13.8%
Felt more in control of my life	1.6%	3.7%
Felt badly	47.0%	53.9%
Thoughts of suicide	2.8%	36.4%
Difficulty at work	2.5%	11.5%
Increase in alcohol or drugs	4.4%	26.7%
Guilt	49.8%	77.9%
Fears concerning future pregnancy and parenting	34.9%	36.9%
Feelings of sadness and loss	38.6%	55.8%
Sexual problems	5.9%	24.0%
Felt overwhelmed	14.0%	30.4%
Overprotecting my child(ren)	6.2%	12.4%
Need help to deal with this loss	8.4%	29.0%
Relationship problems	6.8%	26.7%
Felt part of me died	33.6%	59.5%
Sadness at loss anniversaries	9.7%	39.2%
Unable to forgive self	10.9%	62.2%
Relationship ended with partner	7.8%	19.8%
Psychiatric hospitalization	0.9%	2.3%

increase their use of alcohol or drugs, have fears concerning future pregnancy and parenting, experience feelings of loss and sadness, report relationship problems, feel part of them died, feel sadness and loss at anniversaries (of due date or abortion date), and report the end of their relationship with their partner.

Figure 1 presents the posttraumatic stress related symptoms included in the IPLQ by diagnostic criteria for PTSD: arousal, avoidance and re-experience. For American women, the top 5 most commonly endorsed PTSD symptoms were the following: difficulty remembering, flashbacks, avoiding thinking or talking about the abortion, unwanted memories of the abortion, and difficulty concentrating. For Russian women, the top 5 most commonly endorsed PTSD symptoms included: unwanted memories of the abortion, difficulty sleeping, being hyperalert, having flashbacks, and avoiding thinking or talking about the abortion. Additional analysis revealed that 65% of American women and 13.1% of Russian women experienced multiple symptoms of increased arousal, re-experiencing and avoidance. When the analysis was further restricted to only those symptoms the subjects attributed to their abortions, 14.3% of American and 0.9% of Russian women met the full diagnostic criteria for abortion-related PTSD (at least two symptoms of arousal, one re-experiencing symptom, and three avoidance symptoms persisting for at least one month).

Eight analyses of covariance (ANCOVAs) were conducted in an effort to compare American and Russian women with respect to positive and negative outcomes associated with the experience of an induced abortion. In each analysis, statistical controls were introduced relative to the number of abortions, amount of time elapsed since the pregnancy, the number of weeks pregnant at the time of the procedure, severe stress-related symptoms prior to the experience, and other stressors postdating the abortion in addition to demographic and psychosocial variables found to be significantly related to nationality. More specifically, these variables included the following: divorce, current marital status, number of children, employment, age, holding religious beliefs, the importance of religious beliefs held, self-reported happiness during childhood and adolescence, having experienced harsh discipline, sexual abuse, physical abuse, or parental divorce prior to age 18, having experienced unwanted sexual contact before age 18, having experienced physical or emotional abuse after age 18, and having been raped after age 18.

The results of these analyses are presented in Table 6. Compared to Russian women, American women reported significantly more negative effects, including more symptoms of PTSD (subscale scores and total scores), and higher levels of stress associated with the abortion experience. Russian women, on the other hand, reported significantly higher rates of disruption in cognitive schemata. No nationality differences were observed relative to positive effects. The amount of variance attributed to nationality on the tests that were significant ranged from 1% to 24%.

A series of eight multiple regression analyses were conducted for the Russian and American samples for the purpose of identifying possible demographic and pregnancy circumstance variables that were predictive of positive and negative outcomes. Controls were instituted for severe stress-related symptoms prior to the experience, other stressors postdating the abortion, and psychosocial history variables likely to have been associated with high levels of stress (harsh discipline, sexual abuse, physical abuse, or parental divorce prior to age 18, unwanted sexual contact before age 18, physical or emotional abuse after age 18, and rape after age 18). In each analysis, the control variables were entered into the first block, with the demographic and pregnancy-related variables entered into the second and third blocks respectively. Demographic variables included the following: age, marital status, history of divorce, number of children, employment, and education. The pregnancy circumstance predictors of interest included the following: number of weeks pregnant, time elapsed since the procedure, number of abortions, feelings of being bonded to the fetus, desire for the pregnancy, partner's desire for the pregnancy, partner's supportiveness of the decision, confidence in the decision, needing more time to decide, having received counseling beforehand, having received counseling afterwards, hav-

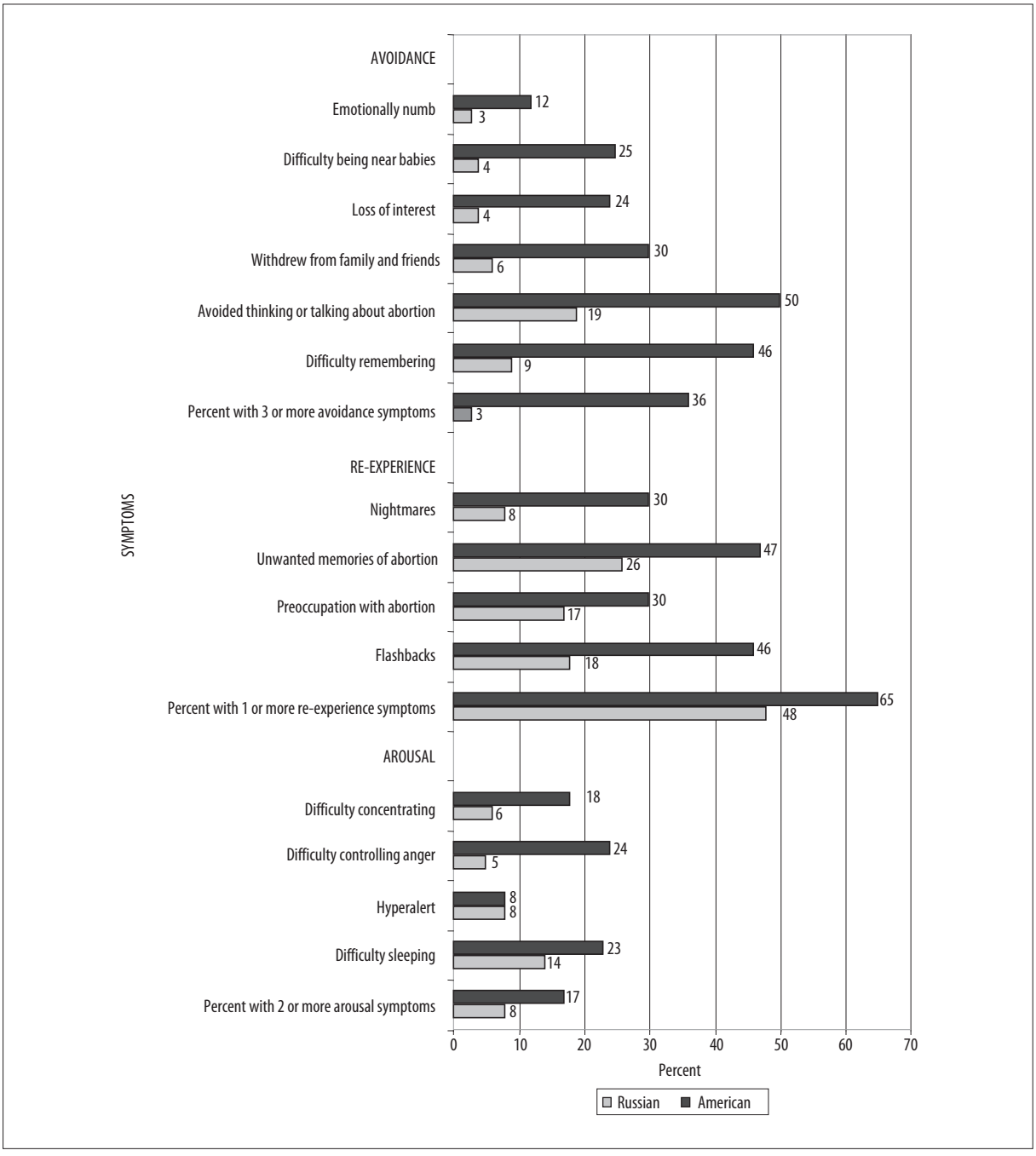

Figure 1. PTSD symptoms following abortion by nationality and percent.

ing felt pressure from others to abort, having felt abortion was morally wrong, believing in a woman's right to have an abortion, having had health complications afterwards, and parental involvement in the decision.

Table 7 provides the outcomes of these analyses. Demographic predictors of negative psychological outcomes included being younger, more religious, and having more children in the Russian sample. Abortion circumstances predicting negative psychological outcomes in the Russian women included having bonded to the fetus, not believing in a woman's right to abort, having a partner who desired the pregnancy, having experienced health complications, having felt pressured into the decision, having experienced ambiguity surrounding the decision, not having received counseling before the procedure, and having been farther along in the pregnancy at the time of the abortion. Russian women experiencing more positive responses tended to be less religious, but there were no other significant demographic predictors of positive reactions. More time elapsed since the procedure and not having felt pressured into the decision were the only two abortion-circumstance variables associated with positive reactions in the Russian sample.

Using data generated from the American sample, demographic predictors of negative psychological outcomes in-

Table 6. Outcome comparisons based on nationality.

Outcome	F-test	Potential range	Russian adjusted mean (SE), 95% CI American adjusted mean (SE), 95% CI	Partial Eta squared
Positive effects	0.23 p=0.630	0–4	0.75 (0.06),.63–0.88 0.81 (0.08),.65–0.97	0.00
Negative effects	119.09 p<0.0001	0–17	5.08 (0.22), 4.65–5.52 9.80 (0.29), 9.23–10.38	0.19
PTSD arousal subscale	25.16 p<0.0001	0–4	1.28 (0.08), 1.12–1.45 2.08 (0.11), 1.97–2.30	0.05
PTSD re-experience subscale	71.68 p<0.0001	0–4	1.24 (0.08), 1.07–1.40 2.62 (0.11), 2.40–2.83	0.12
PTSD avoidance subscale	160.07 p<0.0001	0–6	1.21 (0.11), 1.01–1.42 3.81(0.14), 3.54–4.09	0.24
PTSD total scores	112.03 p<0.0001	0–14	3.73 (0.23), 3.28–4.19 8.51 (0.31), 7.91-9.11)	0.18
Self-reported stress associated with the abortion	6.22 p=0.013	1–4	2.95 (0.05), 2.86–3.05 3.19 (0.06), 3.06–3.32	0.01
Disruption in cognitive schemas	13.61 p<0.0001	90–540	277.22 (3.12), 271.09–283.34 254.82 (4.12), 246.75–262.88	0.03

In every ANCOVA, controls were included for the number of abortions, the number of weeks pregnant, amount of time elapsed since the procedure, severe stress-related symptoms prior to the experience, other stressors pre- and post-dating the abortion, and psychosocial history variables (harsh discipline, sexual abuse, physical abuse, or parental divorce prior to age 18, unwanted sexual contact before age 18, physical or emotional abuse after age 18, and rape after age 18).

cluded being younger, a history of divorce, not having been employed full-time, and more years of education. Abortion circumstance variables that predicted negative psychological outcomes included having bonded to the fetus, not believing in a woman's right to have an abortion, not having been counseled before the abortion, having felt pressured into the decision, and having experienced more abortions. None of the demographic variables predicted positive adjustment reactions among the American women. Abortion circumstance predictors of positive reactions in the American women included believing in a woman's right to an abortion, not having needed more decision time, having a partner who did not desire the pregnancy, and being fewer weeks along at the time of the procedure.

Discussion

Women from Russia and the U.S. were compared with respect to negative and positive outcomes after an induced abortion. Compared to Russian women, American women exhibited more negative effects, more symptoms of PTSD, and reported higher levels of stress associated with experiencing an abortion. However, the Russian women reported significantly higher rates of disruption in cognitive schemata. No nationality differences were observed relative to positive effects.

In the present study, American women were exposed to considerably more preabortion traumatic events than their Russian counterparts. The percentage of American women reporting preabortion trauma is high but roughly equivalent to an earlier study that found 40% of females reported unwanted sexual experiences prior to age 18 [40] and another which found 38% reported childhood emotional abuse [41]. Approximately half of women who experience early childhood trauma also experience PTSD at some point [42]. Other research has confirmed that childhood traumata are more likely to result in subsequent high risk-taking behaviors, including a significantly higher number of abortions [43–45]. The findings here suggest that abortion may well exacerbate prior posttraumatic stress symptoms, even if in remission. Hence, an individual's trauma history should be fully explored in counseling prior to obtaining an abortion.

In this study, for Russian women, the least endorsed PTSD subscale was that of avoidance. This finding corroborates prior research that the PTSD subscale of avoidance is more difficult to assess in non Euro-American cultures, and that failure to diagnose PTSD is often due to lack of cultural comprehension of avoidance symptoms [29].

The TSI Belief Scale was used in this study to examine disruption of cognitive schemata relative to basic needs impacted by trauma: self/other-safety, self/other-trust, self/other-esteem, self/other-intimacy, and self/other-control. The higher the total score, the greater the degree of disrupted cognitive schemata. Numerous factors may explain why Russian women scored higher on this scale than American women, e.g., repeated exposure to abortion as birth control, or a combination of that with repeated and cumulative re-experiencing of other traumata in Russian life, i.e., severe economic shortages, exposure to criminal/gang violence, enduring regimes which were totalitarian and dehumanizing, and disintegration of family life.

Comparing the overall TSI score with other known populations of impacted individuals in the U.S. may help

Table 7. Results of multiple regression analyses.

Russian sample outcomes	Block variables	Change in r^2	Change in F
Negative effects	Block 2: Significant demographic predictors: • Younger age (p=0.001) • More children (p=0.010) • Religious (p=0.004) Block 3: Significant abortion-related predictors: • More bonded to fetus (p=0.010) • Not believing in a woman's right to abort (p<0.001) • Unsure of decision (p=0.020) • More weeks pregnant (p<0.001)	0.07 0.15	3.62, p=0.001 4.11, p<0.0001
PTSD Total scores	Block 2: Significant demographic predictors: • Younger age (p=0.010) • More children (p=0.031) • Religious (p=0.019) Block 3: Significant abortion-related predictors: • No counseling before abortion (p=0.031) • Having experienced health complications (p<0.001) • More weeks pregnant (p=0.001)	0.04 0.13	2.35, p=0.024 3.26, p<0.001
PTSD Arousal subscale scores	Block 2: Significant demographic predictors: • Younger age (p=0.001) • More children (p=0.042) • Religious (p=0.014) Block 3: Significant abortion-related predictors: • Having experienced health complications (p<.008) • Not believing in a woman's right to have an abortion (p=0.040) • Unsure of decision (p=0.024) • More weeks pregnant (p<0.001)	0.06 0.13	3.08, p=0.004 3.00, p<0.001
PTSD Re-experience subscale scores	Block 2: Significant demographic predictors: • None Block 3: Significant abortion-related predictors: • Partner desired pregnancy (p=0.026) • More bonded to fetus (p=0.022) • Having experienced health complications (p<0.002) • More weeks pregnant (p<0.001)	0.02 0.13	1.28, p=0.260 3.09, p<0.001
PTSD Avoidance subscale scores	Block 2: Significant demographic predictor: • More children (p=0.038) Block 3: Significant abortion-related predictors: • More bonded to fetus (p=0.033) • No counseling after abortion (p=0.018) • Having felt pressured (p=0.034) • Having experienced health complications (p=0.001)	0.04 0.10	1.91, p=0.068 2.26, p=0.003
Positive effects	Block 2: Significant demographic predictor: • Less religious (p=0.010) Block 3: Significant abortion-related predictors: • Not having felt pressured (p=0.004) • More years since abortion (p=0.041)	0.03 0.10	1.58, p=0.14 2.14, p=0.006
Disruption in cognitive schemas	Block 2: Significant demographic predictors: • None Block 3: Significant abortion-related predictor: • No counseling before abortion (p=0.007)	0.01 0.08	0.37 p=.918 1.55, p=.078
Self-reported stress associated with the abortion	Block 2: Significant demographic predictors: • Younger age (p=0.011) • Religious (p=0.002) Block 3: Significant abortion-related predictor: • More weeks pregnant (p<0.001)	0.07 0.10	3.21, p=0.003 2.04, p=0.01

Table 7. Continued. Results of multiple regression analyses.

American sample outcomes	Block variables	Change in r^2	Change in F
Negative effects	Block 2: Significant demographic predictors: • Younger age (p=0.001) • History of divorce (p=0.004) Block 3: Significant abortion-related predictors: • None	0.11 0.08	3.65, p=0.001 1.04, p=0.418
PTSD Total scores	Block 2: Significant demographic predictors: • None Block 3: Significant abortion-related predictors: • More bonded to fetus (p=0.036) • Not believing in a woman's right to have an abortion (p=0.013)	0.12 0.12	3.92, p=0.001 1.74, p=0.039
PTSD Arousal subscale scores	Block 2: Significant demographic predictors: • None Block 3: Significant abortion-related predictor: • No counseling before abortion (p=0.036)	0.09 0.09	2.79, p=0.009 1.28, p=0.212
PTSD Re-experience subscale scores	Block 2: Significant demographic predictors: • Not being employed full-time (p=0.038) • More years of education (p=0.050) Block 3: Significant abortion-related predictors: • More bonded to fetus (p=0.001) • Not believing in a woman's right to have an abortion (p=0.006)	0.14 0.14	5.06, p<0.001 2.24, p=0.005
PTSD Avoidance subscale scores	Block 2: Significant demographic predictor: • More years of education (p=0.029) Block 3: Significant abortion-related predictor: • Not believing in a woman's right to have an abortion (p=0.046)	0.09 0.11	2.94, p=0.006 1.58, p=0.073
Positive effects	Block 2: Significant demographic predictors: • None Block 3: Significant abortion-related predictors: • Believing in a woman's right to have an abortion (p=0.001) • Not needing more time to decide (p=0.041) • Partner did not desire pregnancy (p=0.015) • Fewer weeks pregnant (p=0.006)	0.03 0.18	0.94, p=0.477 2.85, p<0.001
Disruption in cognitive schemas	Block 2: Significant demographic predictor: • History of divorce (p=0.040) Block 3: Significant abortion-related predictor: • Not believing in a woman's right to have an abortion (p=0.007)	0.07 0.10	2.29, p=0.029 1.45, p=0.118
Self-reported stress associated with the abortion	Block 2: Significant demographic predictors: • More years of education (p=0.044) • Younger age (p=0.041) Block 3: Significant abortion-related predictors: • More bonded to fetus (p=0.045) • Having felt pressured (p=0.021) • More abortions (p=0.030)	0.07 0.15	2.24, p=0.033 2.32, p=0.003

In every regression analysis, first block controls were included for severe stress-related symptoms prior to the experience, other stressors pre- and post-dating the abortion, and psychosocial history variables (harsh discipline, sexual abuse, physical abuse, or parental divorce prior to age 18, unwanted sexual contact before age 18, physical or emotional abuse after age 18, and rape after age 18).

provide a better understanding of the meaning of the cognitive disruption identified here. For example, the mean total TSI score in a study of battered women was 242 [46], and 244 in a population of outpatient mental health clients [33]. In the present study, American women who aborted had a mean total TSI score of 260 whereas Russian women had a mean total TSI score of 276.

The amount of variance attributed to nationality on the tests that were significant ranged from 1% to 24%, suggesting that most of the variability in women's responses to an abortion may be attributable to other personal or situational factors. Cultural factors may play a role in how stress is experienced and reported. More specifically, the higher rates of behavioral and emotional manifestations reported by the American women are perhaps consonant with a social en-

vironment that is more conflicted on the issue of abortion. On the other hand, in a cultural context wherein abortion is normative and a much less volatile social issue, women who do suffer from the experience, may be more inclined to deal with the stress on an intellectual or cognitive level. Russian women may also be more stress-experienced and less prone to verbalizing than American women given the harshness of economic, political and social conditions they have endured over the past decades.

Using multiple regression, several common variables were determined to be predictive of adverse psychological adjustment following abortion. In both the U.S. and in Russia, these predictive risk factors included: being younger, having bonded to the fetus, not believing in a woman's right to abort, having felt pressured into the decision, and not having received counseling before the procedure. Social policies in both countries that enhance informed consent and professional counseling opportunities for women seeking abortions would appear to be beneficial. Furthermore, public policies that increase the protections afforded younger women would also appear warranted.

Despite the strengths of the study, limitations are apparent. The data were derived through the exclusive use of retrospective self-report measures. As with most of the prior research on postabortion adjustment, self-selection precludes generalization of the results to the entire population of women having abortions, in either the U.S. or Russia. In the U.S, at least, it is known that many women will not report a prior abortion even on an anonymously submitted questionnaire [47]. Research has shown that women who conceal their abortion experience from others, compared to those who do not, are more likely to suppress thoughts of the abortion, experience more intrusive abortion-related thoughts, and feel greater psychological distress [48].

While this study is the first to survey postabortion women from two different cultures with the same instrument, the comparisons between American and Russian women must be cautiously interpreted due to several limitations. *First*, while the TSI scale has been validated among American women, we have no information about its validation among Russian women. *Second*, we have no information on the women who declined to participate. *Third*, while the mean age of women in both groups at the time of their abortions is similar, there was a five-year difference between the mean number of years that had elapsed between the abortion and the time each group responded to the survey (10.6 years for American women, 5.8 years for Russian women). Although it is unclear why this time discrepancy occurred, it may reflect some difference in the age groups served by the American and Russian health care institutions collecting the data or a cultural bias as to why and when women are willing to disclose information about a past abortion. If the experience of negative reactions to abortion or the willingness to disclose negative reactions increase over time, the longer period of time between the abortion and the data collection observed among the American women may play a role in explaining why the American women generally reported more negative reactions. This hypothesis is supported by evidence that negative reactions to abortion may increase over time [25,49,50]. Case reports have also shown that suppressed traumatic reactions to abortion can be triggered by later events, such as a subsequent birth or death [2,11]. The *fourth* limitation is that for the Russian women the hospital where the physician interviewed them was often the same site at where their abortions were performed. Being questioned about a past abortion in the facility where the abortion was performed may have resulted in stress that altered responses or increased the refusal rate. *Fifth*, while American women completed the questionnaire themselves, a physician interviewed the Russian women. The use of an orally presented questionnaire in Russia and a written questionnaire in the U.S. may have resulted in significant differences in the results that were not related to cultural factors but to the administrative mode.

CONCLUSIONS

In conclusion, this study provides increased insight into the manifold reactions of women to induced abortion while also identifying convergent predictors of adverse psychological adjustment following abortion in two diverse cultures. This study furthers our understanding of traumatic responses across cultures, and in particular, suggests that for some women, abortion is a traumatic stressor capable of causing PTSD symptoms. Finally, the results also significantly expand our knowledge of risk factors associated with negative postabortion outcomes, and therefore may help to improve preabortion screening and counseling.

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