

Psychological Effects of Termination of Pregnancy

**A summary of
the literature**

1970-2000

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SUMMARY

This report details the results of a review and summary of the literature of the psychological consequences of termination of pregnancy. This was not a systematic review. A computer-based search of the Australian and international literature published between 1970 and 200 was conducted to identify relevant studies examining the psychological consequences of termination of pregnancy. Keywords included: *abortion; abortion, induced; abortion, legal; abortion, eugenic; abortion, therapeutic; pregnancy reduction, multifetal; stress, psychological; psychological, coping; adaptation, psychological; psychological outcomes*. The search was limited to English language and human research.

A total of 72 articles were included in the review. Appendix A contains a list of articles excluded after reading. Table 1 contains the included articles summaries. Furthermore, 27 reviews were identified and summarised in Table 2.

The quality of the studies (including sample sizes, sample selection, validity of measures etc) varied considerably. However a number of consistent trends emerged:

- The overwhelming indication from the reviewed literature is that legal and voluntary termination of pregnancy rarely causes immediate or lasting negative psychological consequences in healthy women.
- The following factors seem to predict negative psychological outcomes: certain personality traits including impulsivity, attachment, low self esteem and dependency, late gestation abortion, prior psychiatric illness, and conflict with religious or cultural beliefs.
- Overall the research seems to suggest that greater partner or parental support improves the psychological outcomes for the woman and that having an abortion results in few negative outcomes to the relationship.
- Comprehensive reviews of the adolescent-specific literature have concluded that the effects on younger women are mild and transitory and that other confounding factors may influence negative outcome.

- The decision to terminate a pregnancy due to medical or genetic reasons seems to have more of a negative impact often eliciting grief and depression amongst women.
- Some studies have reported positive outcomes such as relief.

METHODS

This report details the results of a review and summary of the literature of the psychological consequences of termination of pregnancy. This was not a systematic review. A systematic review of the literature was beyond the scope of this review.

Article Search

A computer-based search of the Australian and international literature published between 1970 and 200 was conducted to identify relevant studies examining the psychological consequences of termination of pregnancy. The year 1970 was selected as abortions in most countries were legal by that year resulting in considerable research in the years closely following 1970. Databases Medline, Psychlit and CINAL were consulted. Keywords included: *abortion; abortion, induced; abortion, legal; abortion, eugenic; abortion, therapeutic; pregnancy reduction, multifetal; stress, psychological; psychological, coping; adaptation, psychological; psychological outcomes*. The search was limited to English language and human research.

Due to time and other practical limitations, no searches, other than the computerised keyword search, were conducted. As a result, some articles may have been omitted. However, the large number of articles identified and the consistency of the message in those articles suggests that the review outcomes are valid.

Inclusion

Articles were included in the review if they met the following criteria:

- They reported the psychological effects of termination of pregnancies on women.
- Article was printed in the English language.
- The termination of the pregnancy was legal and voluntary. Spontaneous abortions were not considered and multifetal reductions were not considered.
- The psychological effects on the women undergoing the procedures were reported. Effects on other individuals (partners, parents, clinicians, etc) were not discussed.

- Psychological (often emotional) outcomes only were considered. Physical and socio-economic outcomes were not included. Other outcomes such as decision-making processes, information provision or satisfaction with the service or method of abortion were not discussed.

In addition the following methodological criteria applied:

- Articles were required to be empirical data-based reports or reviews of the literature. Letters, opinion articles, and qualitative case studies were not included.
- Articles reporting only the psychological outcomes *prior* to having an abortion were excluded. It is unclear from these studies what the consequences of the termination are and how they differ from baseline or 'normal' psychological state. For example, there is some evidence that suggests that anxiety is higher before the abortion than following it. It is unclear whether this anxiety is due to the impending abortion or other factors.

The outcomes of the review are presented in summary tables and discussed in a brief analysis.

RESULTS

A total of 72 articles were included in the review. Appendix A contains a list of articles excluded after reading. Table 1 contains the included articles summaries. Furthermore, 27 reviews were identified and summarised in Table 2.

Table 1. Summaries of included studies

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
Barnes 1971 (1)	US Hospital	114 abortion pts	1-30 months post	Social activities, Religious attitudes, physical condition	Face-to-face, mail & telephone	Uncertain measures, not random sample, no statistical analyses	9 sought counselling 'a small minority experienced negative reactions'.
Todd 1972 (2)	Scotland Hospital	69 abortion pts	1-3 years post	Psychiatric examination	Face-to-face interview		63/69 reported no adverse effects. Others had psychiatric disorders at baseline
Pare 1970 (3)	England Hospital	130 abortion pts 73 kept baby	1-3 years post	Psychiatric examination	Face-to-face interview or proxy (with GP or parent)	Proxy measure	13% mild feelings of guilt with abortion compared to 34% keeping baby feeling burdened and regret.
Barnett 1992 (4)	Germany Gynaecology clinic	117 abortion pts 256 refused	1 year post	Standard interview Partnership Questionnaire, Interpersonal relationships Scale	Face-to-face interview, mail, telephone	Factor analyses, good internal consistency	No difference in separations between groups, no difference in affect, conflict behaviour, mutual interests or trust
Niswander 1972 (5)	US Clinic	59 abortion pts 20 maternity	Pre and 6 months post	MMPI	Face-to-face interview	Personality scale only	Higher anxiety and impulsivity in abortion group pre and post
Kapor-Stanulovic 1972 (6)	Yugoslavia Gynaecological clinic	121 abortion pts	1 month post	Study interview?	Face-to-face interview?	No reliability/validity data	Worst part of process: 60% before, 13% during, 22% after. Few psychological problems.
Franco 1989 (7)	US ?	71 abortion pts	1 year anniversary of abortion	Beck depression Inventory, Millon Clinical Multiaxial Inventory	Mail-out	Standard personality questionnaire	High dependency and somatoform disorders
Gilchrist 1995	England 1509 GPs	6410 abortion pts 6151 did not	9 months	ICD-8: psychotic illness, deliberate self-harm	GP interview		No differences between groups

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
(8)		request termination 379 refused termination 321 changed mind before termination					
Robbins 1984 (9)	Canada Hospital	139 abortion pts 109 maternity	6 weeks & 1 year post	MMPI	Face-to-face interview		Weaker relationships amongst abortion women
Cozzarelli 1994 (10)	US Private clinic	336 abortion pts	Immediately and 3 months post	Rosenberg Self-esteem, Self Mastery Scale, Self- Efficacy, Perceived Social Support & Commitment	Face-to-face interview & mail-out		Partner accompaniment beneficial for low personal coping women. No other differences
Miller 1992 (11)	US Random selection in geographical area	371 births 65 induced abortions 51 spontaneous abortions	1 yearly for three years	Study scales of intendedness, wantedness Abortion decision questionnaire Maternal Attitude Q, Contraceptive Attitude Q, Feminine interest q, Personal Style inventory, Jacksons Personality Research Form	Self-admin quaires	Self-report?	76% abo no effect 84% no effect on relationship 70% contraceptive use unchanged 80% not affected child plans
Major 1992 (12)	US Private abortion clinics	247+283 abortion pts	1 hour before & immediate after & 3 weeks	Physical complaints Mood Anticipation of future negative consequences Depression using Beck	Interview	Unsure of quality of measures	More likely to report distress if: blame the pregnancy on themselves, low coping expectations, little perceived social support, decision difficult.
Burnell 1987 (13)	US Health plan members	178 therapeutic abortion pts	Within 1.5 years post	Study questionnaire	Mail out	High non-response No reliability/validity	66% were satisfied 10% reported negative consequences

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
						data on survey	
Hunfeld 1994 (14)	Netherlands Hospital	46 women with suspected anomaly	3 months post	Perinatal grief scale: active grief, difficulty with coping and despair	Taped interviews	Small N	40% lack of control
Franz 1992 (15)	US Women Exploited by Abortion group members	252 women: 114 under 20 and 138 20 +	? various	Study scale; feelings, satisfaction, information, preferences	Mail-out	Low response rate No reliability/validity data Group members more likely to report distress	Adolescences less satisfied with services, felt forced by circumstance and more misinformed than adult women.
Greenglass 1975 (16)	Canada ?	188 abortion pts 83 controls	Approx 36.55 weeks post	Differential Personality Inventory	Face-to-face or telephone interview	Matched controls Only 1 personality scale used	All scores within 'normal' range Perceived social support assoc with positive effects
Major 1990 (17)	US Private abortion clinic	283 abortion pts	Immediately post	Perceived self-efficacy – Bandura, Social support, Adjustment, Beck Depression	Face-to-face interview	Only from 1 private clinic	Greater perceived social support enhanced adjustment. Higher self-efficacy better adjustment
Major 1985 (18)	US Private abortion clinic	247 abortion pts	Immediately & 3 weeks post	Perceived self-efficacy – Bandura, Social support, Adjustment, Beck Depression, Physical complaints,	Face-to-face interview	Only from 1 private clinic	More likely to report distress if: blame the pregnancy on themselves, low coping expectations, pregnancy was meaningful. Intentionality of the pregnancy related to depression
Cozzarelli 1998 (19)	US Private abortion clinic	408 abortion pts	1 month post	Perceived self-efficacy – Bandura, Social support, Adjustment, Physical complaints, Relationship Questionnaire	Face-to-face interview	Only from 1 private clinic	Attachment related to distress. Self-efficacy, perceived support, perceived conflict mediate coping.

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
Mueller 1989 (20)	US Private abortion clinic	283 abortion pts	Immediately & 3 weeks post	Perceived self-efficacy – Bandura, Social support, Adjustment, Beck Depression, Blame, Coping expectations	Face-to-face interview		Better expectation associated with better coping, and less depressed
Major 1999 (21)	US Private abortion clinic	442 abortion pts	1 month & 2 year	Stigma, Secrecy, Intrusive thoughts, Thought suppression, Emotional disclosure	Face-to-face interview		Stigmatised - need kept secret, Thought suppression related to intrusive thoughts. Disclosure related to decrease in distress.
Major 1998 (22)	US Private abortion clinic	527 abortion pts	1 month	Self-esteem, dispositional optimism, perceived control, cognitive appraisals, self-efficacy, initial adjustment, coping, residualised distress, positive well-being, decision satisfaction	Face-to-face interview		More resilient personalities appraised their abortion as less stressful and higher self-efficacy for coping.
Major 1997 (23)	US Private abortion clinic	615 abortion pts	1 month	Perceived social support and social conflict, adjustment, well-being	Face-to-face interview		Conflict predicted distress and support predicted well-being
Wallerstein 1972 (24)	US Planned Parenthood facility	22 young unmarried women	5-7 months post	Psychosocial functioning	Face-to-face interview	Low N No reliability /validity data	11 were better 7 were moderately/considerable 3 major disturbance
Payne 1976 (25)	US Hospital	102 abortion pts	Pre and 24hours, 6 weeks and 6 months post	Minnesota Multiphasic Personality Inventory, Profile of Mood States, Symptom Rating Scale, psychiatrist interview	Face-to-face interview	Pre used as baseline/control Appropriateness of scales?	Anxiety, Depression, Anger, Guilt and Shame dropped significantly at 24 hour post and stayed low. More to relief and euphoria. Mental health and personal

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
							relationship related to affect.
Perez-Reyes 1973 (26)	US Hospital	41 adolescents	Immediate and 6 months post	Psychiatric interview, MMPI	Face-to-face interview	Subjective measures Very small N	Immediately: 41% depression, 27% crying spells, 15% anxiety, 34% worrying, 46% guilt, 24% anger. At follow-up felt same or better 75%.
Bracken 1974 (27)	US Clinic	489 abortion pts	1 hour post	Study survey with 9 psychological, social and intrapsychic items	Face-to-face interview	No validation data No comparison data	Partner and parental support predicts better reaction
Lippen 1973 (28)	Canada Hospital	65 adolescents	6 weeks & 1 year post	Psychiatric interview	Face-to-face interview	Subjective interview Low N	No emotional problems noted.
Blumberg 1975 (29)	US Genetic screening program	13 families	?	MMPI	Face-to-face interview	Subjective interview Low N	Depression present in most couples.
Cozzarelli 1993 (30)	US Private abortion clinic	291 abortion pts	Immediately & 3 weeks post	Rosenberg Self-Esteem, Life Orientation Test (optimism), Self Mastery Scale, Self-efficacy, Symptoms checklist-90 Depression subscale, Mood	Face-to-face interview	1 private clinic sample	Optimism, personal control and high self-esteem related to better adjustment.
Holmgren 1992 (31)	Sweden Hospital	128 abortion pts	2 weeks post	Author interview about experiences, thoughts, feelings in connection to abortion and family circumstances	Face-to-face interview	Subjective interview	Psychological difficulties 3%, guilt 26%, shame 22%, regrets 2%
Henshaw 1994 (32)	Scotland ?	355 abortions using 2 techniques medical abortion or vacuum	Average 16 days later	Hospital Anxiety and Depression scale Semantic differential scale: self-esteem	Face-to-face interview		No differences between procedures in anxiety, depression or self-esteem

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		aspiration					
Kaltreider 1973 (33)	US Hospital	18 late presenting abortions (second trimester) compared to 200 normal abortions	1 week post	Psychiatric interview	Face-to-face interview	Very small N Subjective interview	Late presenters coped worse, felt unprepared, frightened and alone compared to normal
Zabin 1989 (34)	US Family Planning	334 black adolescents: 141 abortions, 93 pregnancies, 100 negatives	Two years post	Rosenberg Self-esteem, Rotter Locus of Control, Spielberger State-Trait anxiety Index	Face-to-face interview	No true baseline	No difference in groups for psychological outcomes
Luo 1996 (35)	China Hospital & Family Planning	4000 abortion pts	Admission, 15, 90 and 180 days post	CES-Depression, SCL-90 psychological distress	Medical record audit	Retrospective study	Depression and distress greatest before the abortion and significantly reduces after
Lorezen 1994 (36;36)	Germany Hospital	27 terminations due to fetopathic reasons 50 spontaneous losses	1-2 days and 8 weeks post	Perinatal Grief Scale short form	Face-to-face interview and mail-out	Small N	Grief same between groups immediately but 8 weeks spontaneous more grief
Dallaire 1995 (37)	Canada Medical genetics clinic	76 known risk of genetic disease pregnancies and 124 terminations following detection but not at known risk	Immediately post	Psychiatric interview	Face-to-face interview		Grief in both groups. Guilt: 73% in termination group, 29% in risk group
Freeman 1980 (38)	US Hospital	223 abortion pts	2 weeks post	SCL-90	Face-to-face interview		Repeat abortion resulted in greater emotional distress
Zeanah 1993 (39)	US Hospital	13 with foetal abnormality abortions and 23 spontaneous losses	2 months post	Perinatal Grief Scale, Beck Depression Inventory	Face-to-face interview	Low N	No difference in grief between groups. Mild depression.

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
Howie 1997 (40)	Scotland Hospital	140 abortion pts	2 years post	SF36, Semantic differentials scale – self-esteem	Face-to-face interview and audit		No difference between groups (medical vs vacuum aspiration) in psychological outcomes
Major 2000 (41)	US Private clinics	442 abortion pts	1 month & 2 years post	Brief symptom Inventory, Diagnostic Interview Schedule, Rosenberg Self-Esteem,	Face-to-face interview		Greater relief and positive emotions reported over time. Depression decreased.
Iles 1993 (42)	England Hospital	61 fetal abnormality abortions 22 intra-uterine fetal deaths	4-6 weeks, 6 months, 13 months post	Present State Examination, Modified Social Adjustment Scale	Face-to-face interview	Low N	4 weeks: both groups psychiatric morbidity 4-5 times higher than normal population. 6&12 months back to normal.
Rizzardo 1991 (43)	Italy Hospital	78 abortions, 63 threatened miscarriage, 67 routine antenatal visit	Immediately pre clinic visit	SCL-90 Symptom Checklist, Eysenck Personality Inventory, General Health Questionnaire	Face-to-face interview	Pre – no post measures	Abortion group higher level of psychological distress and neurotic personality traits. Threatened miscarriage moderate distress.
Ewing 1973 (44)	US Hospital	126 abortion pts: 52 prior psychiatric problems, 74 non-psychiatric	2 weeks-2 years post	Study survey?	Mail-out	Little information on the outcome measures or psychiatric diagnoses	Psychiatric group: 19% depression, 12% crying spells, 13% anxiety, 15% sleeplessness, 15% worry, 10% guilt. Non-psyc group: 8%, 7%, 8%, 4%, 7%, 3%. No difference.
Meyerowitz 1971 (45)	US Medical Centre	168 abortion pts with ‘psychiatric indication’	? ‘long range follow-up’	Psychiatric examination	Audit and clinician interviews	Sample of women before legalisation	Felt better or same at follow-up.
Greenglass 1977 (46)	Canada Hospital	188 abortion pts	Average 37 weeks post	Jackson Differential Personality Inventory	Face-to-face interview		No responses that were different to normal population.
Freeman	US	250 abortion pts	Immediately and	Study measure plus Q-	Face-to-face	Unknown scales	Feeling of resolution

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1977 (47)	Outpatient clinics		4 months post	sort personality scale	interview		post abortion.
Smith 1973 (48)	US Problem pregnancy counselling service	125 abortion pts	1-2 years post		Face-to-face interview, mail- out, telephone	Unknown scales Non-standarised collection	90% no reaction at follow-up, 2% severe psychological discomfort.
Ney 1994 (49)	Canada GP	2961 pregnancy losses a % were abortions	?	Study specific questionnaire	Mail-out	Unknown % of abortions	Partner less supportive in abortions and quality of life lower
Shusterman 1979 (50)	US Abortion clinics	393 abortion pts	Immediately – 3 weeks post	Study-specific questionnaire	Telephone	No data on survey instrument Random sample of women	Scored low on psychological reaction.
Belsey 1977 (51)	England Hospital	360 abortion pts	Pre and 3 months post	Social Worker interview, Eysenck Personality Inventory	Face-to-face interview	Instruments unsuitable?	56-76% of women satisfied with decision and procedure. Minority of women maladjusted at follow-up.
David 1985 (52)	Denmark Geographica l region	71,378 pregnancies 27,234 abortions, 1169,819 'normal'	3 months post	Psychiatric admissions	Record audit	Uses only 1 measure: psychiatric admissions	Abortion group: 18%, delivering group: 12%, normal group: 7.5%
Wells 1991 (53)	US Clinic	35 abortion pts	Pre and immediately post	State anxiety, observation of behaviour	Face-to-face interview	Low N Reliance on observer rating	Distress reported pre and anxiety related to pain ratings
Teichman 1993 (54)	Israel Hospital	77 abortions, 32 pregnant, 45 non pregnant women	Pre and 3 months follow- up	State Trait Anxiety scale, Depression Adjective Checklist, Family Adaptability Cohesion Evaluation Scales	Face-to-face interview	1 hospital in Israel	Highest rates of anxiety and depression at pre in abortion group. Anxiety and depression drops significantly post abortion.
Soderberg	Sweden	854 abortees	12 month post	Study specific interview	Face-to-face	Unknown	42% no psychological

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
1998 (55)	University Hospital				interview and telephone	interview schedule	reaction, 16% slight, 4% deeper and 2% persisting.
Moseley 1981 (56)	US Urban southern area	62 abortion pts	Immediately pre and post	Multiple Affective Adjective Check List, Locus of Control Scale, Personal Reaction Questionnaire	Face-to-face interview	Low N	Significant falls in anxiety and depression from pre to post
Robbins 1985 (57)	US ?	228 abortion pts	1 week post	Study specific scale	Face-to-face interview		Partner support related to lower loneliness rating
Di Giusto 1991 (58)	Italy Hospital	54 high risk pregnancies	?	Study specific scale	Face-to-face interview	Small N Unknown scale	Depression and sense of failure
Bradley 1984 (59)	Canada Hospital	266 pregnant women : 28 had previously had abortion	1 week, 1, 3, 6, 12 months postpartum. Unknown time lag since abortion	Personality Research Form, Depression Adjective Checklist, State Trait Anxiety Inventory, social adjustment, self-esteem, attitude.	Face-to-face interview	Unknown time since abortion Low N in abortion group	No differences between groups in psychological functioning
Jacobs 1974 (60)	US Hospital	57 abortion pts	Pre and 30 days post	MMPI, Patient Symptom Checklist, Zung Self-rating Depression Scale, Clyde Mood Scale, post-abortion questionnaire	Face-to-face interview		Distress scores decreased significantly at post
Fingerer 1973 (61)	US Abortion clinic	i.324 abortion pts who completed psych qns on the day; ii.177 abortion pts who returned psych at a later date iii.207 people who	Immediate	State-Trait Anxiety Inventory Scale, Zuckerman's Affective Adjective Check List Today, one measure of depressive symptomatology (SDS)	Questionnaires	Comparison with student population and with students role playing that they had experienced abortion	The women experiencing abortion and those who accompanied them experienced only minor psychological discomfort directly after the abortion

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
		accompanied those in the first group iv. 26 postdoc students v. undergraduate students					
Congelton 1993 (62)	Volunteers from various regions of the US	50 women - 25 who described themselves as being emotionally distressed post abortion and 25 who were neutral/relieved	Current (?) and retrospective reporting of initial responses	Brief Symptom Inventory (BSI) – used Global Severity Index (GSI) & Positive Symptom Distress Index (PSDI), Impact of Event Scale (IES) 7 point Likert scale measuring views on abortion Interview	Face to face interviewing IES completed twice – once in reference to the last 7 days and once in reference to 7 days post abortion	Unknown time since abortion 1 unknown scale Participant bias	The Distressed group had significantly higher scores on initial stress and religiosity and reported less social support and confidence regarding their decision.
Tornbom 1996 (63)	Family Planning Unit patients Goteburg, Sweden	404 women - 201 applying for abortion 203 continuing pregnancy Random sample of all women attending clinic	Attending clinic for first time	Study specific questionnaire	Interview and questionnaire completed on first visit	Unknown questionnaire Prior to abortion – evaluated previous abortion	Women who had had previous abortions had experienced more psychological problems than the other groups
White-van Mourik 1992 (64)	West of Scotland Regional Genetics Service	84 women and 68 spouses	All couples who in 1986 had a second trimester termination for foetal abnormalities – 2 years post abortion	Leeds Scale for the Self-Assessment of Anxiety and Depression, The General Health Questionnaire	Mail-out	13 couples refusing to participate cited their reason as being the issues was still too painful to discuss No comparison group	Groups particularly vulnerable to psychological trauma after termination for foetal abnormalities are those under 21 years, women who become infertile post-termination and those

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
							with 'vulnerable personalities'
Pion 1970 (65)	USA	Initial 1122 women who rang a telephone support service 154 follow-up	Initial pre-abortion, no time given on follow-up	Study specific questionnaire – demographics, contraception use	Telephone	Non-random Follow-up group small and non-random	67% at follow-up who had completed abortion found the procedure 'very helpful' and 69% had no guilt regarding the procedure
Jones 1984 (66)	USA	14 women and 12 men from couples who had undergone amniocentesis and abortion (total=26 couples)	Unsure	Structured interview	Face-to-face interview	Small n	Couples coped well with support
Cozzarelli 1994 (67)	Private abortion clinic, USA	291 first trimester abortion pts	Immediately after abortion and & 3 weeks follow-up	Symptoms Checklist – 90 Depression Subscale Objective raters of the anti-abortion rally outside clinic	Immediate – questionnaire in person Follow-up- those who attend 3 week appt in person and rest mail-out	Only 38% 3 weeks follow-up data received	Immediate depression scores indicate some depression present but at 3 weeks none The more anti-abortion contact they had coming into a clinic, the more immediate depression was felt
Jorgensen 1985 (68)	1 Hospital Sweden	10 women who had abortions due to foetal abnormality	6-34 months post abortion (mean 17 months)	Study specific semi-structured interview	Face-to face interview	Small sample No independent measure of psychological trauma or depression	All women reported moderate to strong reactions – reported that more than half the women were still depressed at the time of interview
Salvesen 1997 (69)	1 Hospital, Norway	53 women - 24 who had terminated a	Interview shortly after event	Interview based on the Montgomery and Asberg Depression Rating Scale	Face-to-face interview	1 hospital	Long-term psychological stress response in women to

1st Author Year ID	Setting	Sample	Timing	Measures	Data collection	Methodological comments	Results
		pregnancy due to abnormalities, and 29 who had second trimester spontaneous abortion or who had experienced perinatal death	7 weeks post – IES, STAI 5 months post – IES, GHQ-30, SATI-I (12 item) 1 year post – IES, GHQ-30, STAI X-1, SRE and background qn	General Health Questionnaire (GHQ-30), the State Trait Anxiety Inventory (STAI), Impact of Event Scale (IES), Schedule for Recent Life Events (SRE)	Questionnaires – mail out		termination due to foetal abnormality does not differ from those suffering perinatal loss.
Tsoi 1976 (70)	2 Hospitals, Singapore	1739 (6 month follow-up 60%)	Immediately before and 6 months post	Interview	Interview was carried out by midwife who then completed qn on pt behalf	No immediate post abortion data No standardised questionnaire	Reduction in psychiatric symptoms 6 months after abortion
Greenglass 1976 (71)	Canada	188 women responding to advertisements and signs at abortion clinics	36.55 weeks post abortion (range 17-68 weeks)	Study specific interview	Face-to-face	Sample selection Self-report of psychiatric disturbance	Of women with prior psychiatric history (56), 12 reported disturbances post-abortion compared with 10 out of 132 women who had no psychiatric history prior to abortion.
Lee 1978 (72)	Fertility control clinics, Singapore	829 vacuum aspiration abortion patients	6 weeks post abortion	? Study specific interview based on a questionnaire– says ‘women were questioned’		No standardised questionnaire	Primipara women reported higher levels of pain than multipara women

Table 2. Summaries of included reviews

1st Author	Year	Domains explored	N of studies	N of subjects	Conclusions
Walter (73)	1970	Psychological and emotional consequences of abortion	141	?	For the healthy woman abortion is most often truly therapeutic.
Fleck (74)	1970	Psychological aspects of abortion, unwanted pregnancy,	42	?	Psychiatric considerations must extend to the unhealthy consequences of unwanted pregnancy and motherhood.
Resnik (75)	1971	The law, criteria, suicide, emotional sequelae	?	?	Indications are that abortions may lessen the possibility of endangering the mental health of the pregnant female.
Osofsky (76)	1972	Psychological reactions	43	?	Negative feelings are uncommon. Relief and happiness have been the predominant moods.
Jacques (77)	1973	Incidence of psychological trauma in abortion	15	?	The data show minimal psychological trauma associated with therapeutic and legalised abortion. Where severe trauma has been encountered, it is the result of antecedent psychological problems.
Blumberg (78)	1975	Early studies Psychoanalytic studies Data analysis studies Indication for abortion Abortion carried out for genetic indication	50	?	A mild, short, depressive and guilt ridden period following abortion is common. Severe psychological reaction rare but related to pre abortion psychiatric state and reason for abortion (foetal abnormality, maternal organic disease or genetic defect).
Shusterman (79)	1976	Antecedents of abortion, consequences of abortion	83	?	Data show that women receiving therapeutic abortions experienced favourable psychological consequences stronger than negative.
Gordon (80)	1976	Psychological sequelae of abortion	34	?	For most women abortion has had few if any negative psychological sequelae. In the limited number of cases where feelings of guilt or depression have been present, they have tended to be mild and transient in nature. Psychiatric disturbances post abortion usually related to its existence pre abortion.
Handy (81)	1982	Social and legal context, characteristics of women seeking abortion,	55	?	Women seeking termination are found to demonstrate more psychological disturbance than other women do. Although some women experience adverse

1 st Author	Year	Domains explored	N of studies	N of subjects	Conclusions
		contraceptive use, pre-abortion counselling, psychological consequences			psychological sequelae after abortion, the great majority do not.
Greydanus (82)	1985	Abortion in adolescence	100	?	Some studies have concluded abortion is more difficult for youths than adult women. Greater likelihood if coincidental psychiatric disorder, religious, poor family support, poor counselling, genetic abortions, late gestation abortion.
Inter-divisional Committee on Adolescent Abortion (83)	1987	Adolescent abortion: psychological and legal issues	35	?	Although adolescents' reactions to abortions may be more negative than average adults, the magnitude of the age difference is small and are usually mild and transitory.
Ney (84)	1989	Mental health and abortion	108	?	Elective abortion is probably more harmful than helpful to the mental health of healthy women. The most frequent psychological complications to abortion are: guilt, grief, anxiety, sleep disturbance, somatization, depression, low self esteem.
Rogers (85)	1989	Psychological impact of abortion and consideration of methodology	76	?	Methodology varied immensely across studies.
Romans-Clarkson (86)	1989	Psychological sequelae of abortion; predicting poor outcome, women refused abortion, ANZ research	18	2605	Abortion does not cause deleterious psychological effects. Women most likely to show problems are those pressured into it or they had because foetal/medical reasons.
Posavac (87)	1990	Psychological aspects of abortion, methodology	24	1512	Pre/posttest designs appeared to show that abortions led to improved psychological state while comparison group studies showed little change or slightly negative outcomes.
Adler (88)	1990	Psychological responses after abortion, factors relating to responses	35	?	Majority of women (approx 76%) experience relief after abortion. About 17% experience mild-moderate negative emotions.
Turell (89)	1990	Emotional response to abortion: Historical factors, social factors, demographic variables, social variables, psychological variables	37	At least 1879	Feeling of guilt, shame, regret, anxiety, depression, anger present but diminishes post abortion. Sense of relief and happiness also present.
Dagg	1991	Psychological	58	4513	Adverse sequelae occur in a

1st Author	Year	Domains explored	N of studies	N of subjects	Conclusions
(90)		sequelae of therapeutic abortion – denied and completed		abortions 7981 denied	minority of women and often are continuations of symptoms that appeared before the abortion. Women denied abortion may show ongoing resentment lasting years.
Adler (91)	1992	Psychological factors in abortion	80	?	Severe negative reactions are infrequent. Some individual women may experience severe distress following abortion but it is unclear whether these are causally linked.
Wilmouth (92)	1992	Methodology	63	29,743	Studies that used a comparison group have shown that the psychological risks associated with abortion are similar to those associated with childbirth.
Rosenfeld (93)	1992	Emotional responses to therapeutic abortion	27	?	Healthy women who choose to terminate have few serious or negative emotional consequences. Predictors of disturbance: adolescence, second trimester abortion, medical or genetic abortion, previous psychiatric problems, multiple abortions, lack of partner support
Stotland (94)	1992	Abortion trauma syndrome	?	?	Significant psychiatric sequelae after abortion are rare. Significant psychiatric illness following abortion occurs mostly in those ill before pregnancy, those having abortion due to external pressure.
Zolse (95)	1992	Psychological complications of therapeutic abortions: short-term and long term and risk factors	33	10260	Severe or persistent psychological disturbances occur in only a minority (approx 10%) of women. Mostly depression and anxiety. Psychoses are uncommon (0.003% of cases) but in those with a history of illness. Groups most at risk are: previous psychiatric illness, younger women, poor social support, religious/cultural objections.
Clare (96)	1994	Psychiatric aspects of abortion	41	?	The majority of studies indicate that the psychological consequences of abortion are in the main, mild and transient. Late gestation and religious will have more trouble.
Arthur (97)	1997	Psychological after effects of abortion	?	?	Women experience little or no psychological damage from abortions. Women at greater risk are: younger, previous psychiatric illness, medical or genetic reasons for abortion, low support, strong religious or

1st Author	Year	Domains explored	N of studies	N of subjects	Conclusions
					philosophical views, coerced externally or late gestation abortions.
Lewis (98)	1997	Factors associated with post abortion adjustment problems	41	?	Identified 21 factors in the areas of: demographics, decision process, meaningfulness of pregnancy, medical/genetic indication, abortion during second trimester, attribution's for the pregnancy, coping expectancies, social support
Bourguignon (99)	1999	Genetic abortion	51	?	Reports of varying degrees of grief.

DISCUSSION

For the purposes of this review, psychological effects were deemed to be “substantial” if more than 20% of the study sample reported them as concerns. They were “moderate” if between 10-20% of the sample were concerned and “mild or non-existent” if less than 10% reported effects. Where numbers were not reported, terms used by the original authors, such as “many” or “a minority”, are used.

The psychological consequences of abortion on women covered a broad spectrum of issues which have been summarised into the following six domains: general negative outcomes, predictors of negative outcomes, personal relationships, outcomes of teenage abortions, foetal abnormality-related abortions, and general positive outcomes. This discussion presents an overview of the findings of these studies.

In reading this report the following caveats should be taken into account;

- The quality of the studies (including sample sizes, sample selection, validity of the measures, etc) varied considerably.
- There is a lack of consistency in the measures used to collect the psychological outcomes data, hence comparisons may not always be appropriate.
- In many cases, the women were sampled from only one clinic or hospital, hence the validity of generalising the results in other settings may be limited.
- Since care may vary significantly across the different countries represented in this review, it may not be appropriate to generalise the results from all countries to the Australian setting
- The review encompasses a 30-year period. There have been changes in the types of methods used for abortions during that period and that may influence reports of psychological outcomes. Furthermore, the social acceptance of, or ‘stigma’

around, termination of pregnancy may have changed during that period which may also affect outcomes.

1. Negative psychological outcomes

The overwhelming indication from the reviewed literature is that the legal and voluntary termination of pregnancy rarely causes immediate or lasting negative psychological consequences in health women. When it does, it is mild and transient. There does appear to be women who are at greater risk of some trauma. The outcomes most often explored are personality traits such as self-esteem, guilt, anxiety, depression, sense of loss and coping. The majority of studies reported that negative psychological outcomes diminished following the abortion (6); (20); (21); (25); (26); (35); (41); (42); (47); (54); (55); (56); (60); (45).

Two studies compared different types of procedures (medical abortion or vacuum aspiration) (40); (32) and discovered no differences in outcomes between the two groups.

Some studies compared the distress of women undergoing an abortion with women who were refused abortions (4) ;(8) and found no differences in the responses of both groups.

Only one of 26 reviews reported significant negative psychological outcomes as a result of termination of pregnancy. The review published by Ney (1989) (84) included 108 studies. It is unclear why that one review contradicted the conclusions of all others. No reviews were systematic reviews which included pooling of data and therefore the ability to

2. Predictors of negative outcome

Although the negative consequences of termination seemed to be modest, a number of studies explored those characteristics which tended to predict psychological distress. Predictors most often cited by studies included personality traits such as

impulsivity (5), attachment (10) and dependency (7), weaker personal relationships (9); (10); (12); (18); (27); (57), late gestation abortion (33), (18), prior psychiatric illness (2); (18); (5); (62); (10), and the abortion was in conflict with religious or cultural beliefs (67); (62); (10); (12).

Reviews of risk factors for psychological distress corroborate those links. Rosenfeld (93) listed the predictors of psychological disturbance following an abortion as adolescence, late pregnancy abortion, medical or genetic abortion, previous psychiatric problems, multiple abortions and lack of partner support. Clare (96), Arthur (97) and Zolese (95) add religious/cultural objections, and external coercion to have the abortion as triggers for negative outcome.

3. Personal relationships

Some studies examined the influence of the quality of personal relationships on abortion outcomes. Cozzarelli (10) reported that a partner accompanying women to the procedure resulted in better coping. Similarly, Bracken (27) found that both partner and parent support predicted better outcome and Robbins (57) found that partner support related to lower loneliness ratings. In a study (66) of couples and how they dealt with an abortion the main conclusion was that couples coped well with support suggesting that a partner may lessen the burden on the women. There is also some evidence that less supportive partners and weaker relationships are more likely to result in abortions (10). Barnett studied the effect of abortion on relationships and found no differences in the numbers of partnership separations or other outcomes such as conflict behaviour and mutual trust between those having an abortion and a group refused abortion.

Overall the research seems to suggest that greater partner or parental support improves the psychological outcomes for the woman and that having an abortion results in few negative outcomes to the relationship.

4. Outcomes of teenage abortions

Much attention has been given to the psychosocial outcomes of teenage abortions. Some studies which have used adolescent samples suggest few negative lasting consequences on teenagers (24); (91); (34). Other studies have noted youth as a predictor of negative outcome (15); (97). Perez-Reyes (26) reports significant immediate distress amongst a group of 41 adolescents. However, comprehensive reviews of the adolescent-specific literature (83); (82) have concluded that the effects on younger women are similarly mild and transitory as those on adult women and that similar to the adult literature other confounding factors may influence better outcome including previous coincidental psychiatric disorder, religion, weak family support and late gestation abortion.

5. Foetal-abnormality related abortions

The decision to terminate a pregnancy due to medical or genetic reasons seems to have more of an impact on women than those choosing to do it for non-medical reasons. Nine studies of this particular group are included in the review(37); (14); (91); (42); (68); (69); (66); (99); (29). Hunfeld (14) reports that most women reported a loss of control over their bodies and pregnancies as a result of the medically indicated abortion. A number of studies report raised levels of grief amongst women having genetic screening which results in termination (10); (37); (91); (42). In Italy, Di Giusto (58) reports also depression and a sense of failure amongst a sample of 54 women.

6. Positive outcomes

Most empirical research conducted on the consequences of termination of pregnancy have sought to reveal the negative outcomes associated with the procedure. However, a small number of studies have reported positive outcome. In an early study of teenage pregnancies Pare (48) compared those who continued the pregnancy with those who chose to terminate. They found a minority of the abortion group experiencing serious psychological sequela . However most of the group who kept their babies reported feeling the burden of a child, regretted not terminating and frequently admitted to feelings of resentment towards the baby. More recently Major

(41) in a study of 440 women, found that a majority of women reported more benefit than harm from their abortion.

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APPENDIX A. EXCLUDED STUDIES

Case study reports

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