Psychological functioning in couples after termination of pregnancy for fetal abnormality: the impact of early intra-couple discordance

Longitudinal study in couples

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ABSTRACT

Background: Serious and enduring psychological problems in women after termination of pregnancy (TOP) for fetal abnormality are well established. However, little is known about psychological adjustment to TOP in men. The impact of within-couple discordance for psychological measures on long-term mental health has never before been studied.

Study design: Longitudinal prospective study. Self-completed questionnaires on grief, posttraumatic stress symptoms, generalised psychological malfunction, depression, and a number of other topics were obtained from 90 couples 4, 8, and 15 months after TOP. Data was analyzed for within-couple effects to identify risk factors.

Results: Trajectories of psychological adjustment to TOP were comparable in women and men at a group level. At the couple level, females often had much higher scores on psychological measures than partners (denoted as discordance). Discordant couples compared with consistently concordant couple s were predicted by lower self-efficacy in women compared with partners and by intrapair disagreement about the amount of support they received from each other.

Conclusion: Within-couple discordance (female score exceeding male score) for psychological functioning 3 - 4 months after TOP is a risk factor for serious and enduring mental problems in the female partners.

INTRODUCTION

Several studies have provided compelling evidence of serious and enduring mental health problems in women following termination of pregnancy (TOP) for fetal abnormality.¹⁻¹³ However, much less is known about the impact of such loss on psychological responses in men and on couples' adjustment to TOP. This is surprising, as TOP in almost all cases is truly a couples' issue: both partners face the loss of a (usually wanted) baby and experience the distress and life alterations associated with that loss.

In a recent study of psychological functioning in bereaved couples 2-7 years after TOP, we reported that females compared with their partners displayed more grief and posttraumatic stress symptoms, that partners' scores correlated well, and that simultaneous occurrence of partners' scores in the clinically pathological range was virtually non-existent.³ However, because of its retrospective character, the study provided no information about the trajectories of psychological adaptation over time, neither in individuals nor in couples. In addition, despite the fair correlations between partners' psychological outcome measures, the latter often showed poor correspondence within couples.

The present prospective longitudinal study aims to address some of the mentioned limitations. Psychological malfunctioning was assessed three times over a 15-month-period in 90 couples who underwent TOP for fetal anomaly. Attention is given to patterns of continuing pathology and to intra-couple discordance for psychological outcomes and its risk factors. This knowledge is useful for the early identification of couples at risk for long-term psychological problems both for clinicians and in health policy.

PATIENTS AND METHODS

This study was conducted in three university and five non-university hospitals in the Netherlands between January 1999 and October 2002. All local ethics committees granted approval of the study. Women who underwent termination of pregnancy (TOP) because of a fetal anomaly diagnosed before 24 weeks of gestation were approached at the time of the TOP by their treating gynaecologist. The women and their partners (all male) were asked permission to be sent a research information letter in which they were invited to participate in what was called 'an extensive anonymous questionnaire study'. After written informed consent had been obtained coded questionnaires were posted out. They were returned at about 4 months (T1; mean 14 wk, range 11 - 22 wk), 8 months (T2; mean 35 wk, range 32 - 50 wk), and 15 months (T3; mean 65 wk, range 59 - 72 wk) after TOP. Partners were requested to fill out the questionnaires separately.

One questionnaire contained questions on socio-demographic, medical and obstetric history. A second series of questionnaires were Dutch versions of various validated questionnaires. Maladaptive symptoms of grief were measured by the Inventory of Complicated Grief (ICG), a 29-item self-report questionnaire with 5-point scales and a possible total score ranging from 29 to $145.^{14}, 15, 16$ Symptoms of posttraumatic stress were measured by the Impact of Event Scale (IES).^{17,18} This is a widely used 15-item instrument measuring the impact of a named stressor, in this study TOP. The scale deals with the components intrusion and avoidance in a 4-point response format with a possible total score ranging from 0 to 75.¹⁷ The Symptom Checklist-90 (SCL-90), was considered to assess the level of generalized psychological malfunctioning.^{19,20} Because of the nature of the loss we also used the Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-rating scale that has satisfactory sensitivity and specificity for assessing post partum depression.^{21,22} Indicative of pathological outcome were the following cut-off points: ICG: \geq 90 ^{14,16}; IES: \geq 26 ^{9,23}; SCL-90: women \geq 204, men \geq 170 (95th percentiles); EPDS \geq 12.

The Generalized Self Efficacy Scale $(GSE)^{24}$, a 10-item measure, was used to assess self-confidence as a stable personality characteristic; a high score indicates that an individual believes that he or she can cope with difficult demands.

A last questionnaire was especially designed for this study and contained questions about doubt and perceived external pressure during the decision period, and questions about perceived partner support, all to be answered on a 5-point scale: 1 ('very much'); 2 ('much'); 3 ('moderate'); 4 ('poor'); and 5 ('not at all'). Dependent on the response rates, these categories were later recoded for statistical reasons to form new variables (see Table 2).

The treating gynaecologist was responsible for providing diagnosis and viability scoring. The total scores on the inventories on complicated grief, posttraumatic stress symptoms, psychological malfunctioning, and post partum depression at 4, 8, and 15 months after termination were considered the outcome measures. Couple-shared variables (Table 1) and the intra-pair discordance for partners' age, educational level, religiosity, doubt and perceived pressure during decision making, and perceived partner support at T1 were considered predictors (Table 2).

SPSS for Windows (version 12.01, SPSS Inc., Chicago, Ill.) was used for data management and statistical analysis. Results were summarized with the use of standard descriptive statistics: counts and percentages for categorical variables, and means, standard deviations (SD), and ranges for continuous variables. Groups were compared for equivalence in baseline characteristics using the Chi-square test or Fisher exact test, as appropriate, for categorical measures and Student's t-test for continuous variables. Trends over time were evaluated with one-way ANOVA for repeated measurements. Stepwise logistic regression analysis was conducted to identify independent factors in subgroups of participants.

RESULTS

Three hundred couples were invited to participate; 217 women and 160 of their partners returned the questionnaires at T1. Couples were lost to follow-up mainly

due to a high attrition rate in males, such that full data of 90 couples was available for the present investigation.

Couple-shared characteristics and individual variables for partners are presented in Tables 1 and 2, respectively. All couples lived together either in wedlock (75.6%) or unmarried (24.4%) and remained cohabiting during the study period. Males compared with females had more often a full time job (as it is common in the Netherlands), were older, and had higher scores on self-efficacy (GSE on all occasions. The scores on GSE remained stable over time both in males and females. Level of education and the response categories of religiosity, doubt and perceived pressure in the decision period, and perceived partner support did not differ between females and males and showed fair intra-couple relationships, except for partner support on two occasions (Table 2).

On each of the three occasions, females had higher scores than males on all outcome measures and the couples' scores were fairly correlated (Table 3; Figs. 1 - 4). The psychological measures declined during the study period in either sex (p < 0.0001 for all time courses). The proportions of females and males with a score in the pathological range (distress), according to predefined criteria (see Methods), were similar for ICG and SCL on all occasions, but differed statistically for IES and EPDS (Table 3). However, for couples the incidence of having a pathological score together was markedly lower, especially when compared to the distress rates in females. The distress rates in females and males and the rate of simultaneous distress decreased steadily over time (Table 3). The latter is illustrated by the clearing of the upper right quadrants in the graphs for posttraumatic stress symptoms from T1 to T3 (Fig. 2).

Table 1. Couple-shared variables for partners who underwent termination of pregnancy (TOP). Data is presented as proportion or as mean (SD) and range for 90 couples.

Duration relationship (y)	8.8 (4.8); 2 - 22
Living children at TOP (yes; %)	62.2
Parity (%)	
$0; 1; \ge 2$	28.8; 35.6; 35.6
Gestational age (wk)	18.3 (3.5); 12 - 24
TOP procedure (%)	
Dilatation & Extraction	17.0
Induced labor	83.0
Viability (yes; %)	51.1
Elevated risk (yes; %)	67.8
Down syndrome (yes; %)	40.0
New pregnancy (yes; %)	
T1; T2; T3 (or baby)	3.3; 33.3; 53.9

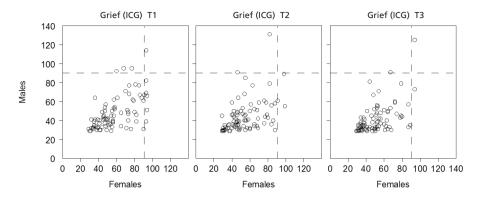


Figure 1. Relationship of partners' scores on complicated grief (ICG) on each of three assessment occasions (T1: 4 months; T2: 8 months; T3: 16 months). Dotted lines represent cut-off points to define psychological pathology (distress).

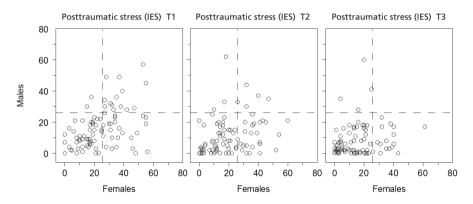


Figure 2. Relationship of partners' scores on posttraumatic stress symptoms (IES) on each of three assessment occasions (T1: 4 months; T2: 8 months; T3: 16 months). Dotted lines represent cut-off points to define psychological pathology (distress).

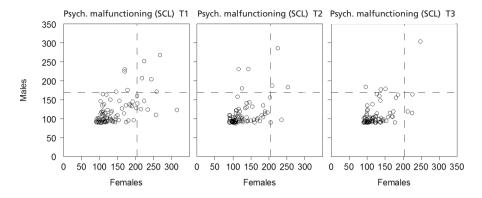


Figure 3. Relationship of partners' scores on generalised psychological malfunctioning (SCL-90) on each of three assessment occasions (T1: 4 months; T2: 8 months; T3: 16 months). Dotted lines represent cut-off points to define psychological pathology (distress), which were different for women and men.

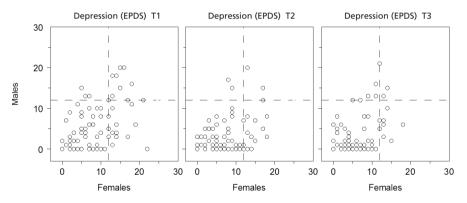


Figure 4. Relationship of partners' scores on the Edinburgh postnatal depression scale (EPDS) on each of three assessment occasions (T1: 4 months; T2: 8 months; T3: 16 months). Dotted lines represent cut-off points to define psychological pathology (distress).

To study patterns of continuing pathology, scores of partners on a particular questionnaire were classified as pathological for both (B); pathological for the woman only (F); pathological for the male only (M); or as normal for both (N). For each outcome measure, this resulted in categorization of the couple into one of 64 possible combinations when all three occasions were considered. In view of the results of our retrospective study (ref.), combinations that represented alternating patterns of change between the partners over time, such as BFM, FMF, or MFM, were of particular interest. However, there was no evidence of specific patterning for any of the outcome measures.

To identify factors that could differentiate couples discordant for a psychological outcome from couples with concordant scores (see Figs. 1 - 4), we calculated the intra-pair discrepancy as the difference in score (largest minus smallest) divided by the largest score multiplied by 100. Couples were considered discordant if the intra-couple difference was > 25% for ICG, > 50% for IES with a minimum difference of 10 points, and > 25% for SCL (not performed for EPDS, because of the narrow range of possible scores). Further analysis was restricted to couples with the woman's score exceeding that of spouses, as the opposite occurred too infrequently (n = 3 to n = 6 on each occasion). Couples with discordant scores at T1 and on at least one subsequent occasion were then compared with couples that consistently had concordant scores. The predictors (see Methods) were evaluated for their possible effect on intra-couple discordance with the use of logistic regression. Adjusted odds ratio (OR) and 95% confidence interval (CI) are presented for factors that were of statistical importance. Couples discordant for grief underwent TOP at more advanced gestational age than concordant couples $(19.4 \pm 3.4 \text{ wk vs } 17.1 \pm 3.5 \text{ wk; OR } 1.24; 95\% \text{ CI } 1.03-1.49; p < 0.05)$, had less often living children before TOP (41.7% vs 72.2%; OR 4.17; 95% CI 1.43–14.82; p < 0.05), and tended to disagree more often on the mutually perceived amount of partner support (30.7% vs 9.3%; OR 4.37; 95% CI 0.93-8.48; p = 0.063). In addition, the women in the discordant group scored on average 3.8 points less than their partners on self-efficacy (GSE) at T1, as opposed to an intra-couple difference of 0.3 points in the concordant group (Table 4; p < 0.05). This effect lost significance after adjustment for the other variables (OR 0.92; 95% CI 0.83-1.01; p = 0.079). Couples discordant for posttraumatic stress symptoms (IES) were independently predicted by the intra-couple difference in GSE-scores at T1 only (OR 0.88; 95% CI 0.78–0.98; p < 0.05) (see Table 4 for mean values). Intra-pair discordance for scores on generalised psychological malfunctioning (SCL) was independently predicted by disagreement about mutually perceived partner support at T1 (37.5% vs 0% in the concordant group; OR 6.03; 95% CI 2.48-18.55; p < 0.05), and the intra-couple difference in GSE-scores at T1 (OR 0.85; 95% CI 0.74–0.98; p < 0.05; Table 4).

Table 2. Individual factors for partners. Intra-couple comparisons were performed with paired t-tests, chi-square (Fisher) test, and Pearson correlation. Data is presented as mean (SD) and range or as proportion.

Variable	Females	Males	Correlation (R; p)
Age (y)	35.7 (4.0); 26 - 44	38.0 (4.9); 26 – 50; ****	0.61; ****
Education (%) Low; Middle; High	9.0; 37.1; 53.9	12.4; 23.6; 64.0; ns	0.47; ****
Employment (%) Full time; Dart time; Unemployed / other	37.8; 42.2; 20.0	95.6; 3.3; 1.1; ****	0.15; ns
Religious (yes; %)	57.5	52.9; ns	0.40; ****
Doubt in decision period (%) (very) much; moderate / hardly; not at all	14.6; 47.2; 38.2	14.6; 44.9; 40.5; ns	0.53; ****
Perceived pressure in decision period (yes; %)	15.6	14.4; ns	0.35; ***
Perceived partner support (very) much; moderate / poor; not at all (%) T1	88.9; 10.0; 1.1 77 0.18 0. 2 2	91.1; 6.7; 2.2; ns on o. e o. 1 1 . #	0.15; ns 0.26, **
12 T3	83.1; 12.4; 4.5	91.1; 6.7; 2.2; ns	0.11; ns
Self efficacy (GSE) T1 T2 T3	31.0 (4.9); 17 – 40 31.3 (5.0); 17 – 40 30.9 (5.0); 12 – 39	33.1 (4.6); 10 - 40; ** 33.6 (4.6); 11 - 40; *** 33.7 (4.4); 19 - 40; ***	0.14; ns 0.05; ns 0.24; *
Regret as to decision (ycs; %) T1 T2 T3	8.9 6.7 6.7	1.1; ns 1.1; ns 1.1; ns	1 1 1
Doubt as to decision (yes; %) T1 T2 T3	11.1 8.9 6.7	3.3; # 1.1; * 4.4; ns	

able 3. Psychological outcome measures for partners. Intra-couple comparisons were performed with paired t-tests, chi-square (Fisher) test, and Pearson correlation. Data is presented as mean (SD) or as proportion.

TT1.1.		Mean value (SD)		Pa	Pathological score (%)	(%)
variable	Females	Males	Correlation (R; p)	Females	Males	Simultaneous
Grief (ICG)						
Tl	$58.2\ (19.0)$	48.1 (17.5); ****	0.59; ****	10.0	4.4; ns	1.1
T2	53.3(18.1)	43.8 (16.7); ****	0.47; ****	3.3	2.2; ns	0
Т3	50.2(16.6)	41.3 (15.7); ****	0.54; ****	2.2	2.2; ns	1.1
Posttraumatic stress						
ymptoms (IES)						
TI	24.7~(14.4)	16.1 (12.4); ****	0.43; ****	44.9	19.1; ***	16.9
T2	20.4(14.1)	11.1 (11.5); ****	0.30; **	32.6	9.0; ***	5.6
Т3	14.9(12.9)	7.7 (10.0); ****	0.25; *	18.0	4.5; **	0
Psychological						
malfunctioning (SCL)						
TI	145(49)	122 (39); ****	0.57; ****	14.5	10.8; ns	6.0
T2	128(38)	111 (35); ****	0.45; ****	6.0	7.2; ns	3.6
T3	122(34)	108 (32); ****	0.56; ****	4.8	4.8; ns	1.2
Depression (EPDS)						
Tl	8.1(5.4)	5.5 (5.6); ****	0.45; ****	28.9	15.9; *	13.3
T2	7.2(4.8)	3.2 (4.2); ****	0.34; **	21.7	6.0; **	3.6
Τ3	L K (A E)	2 J (J E): ****	0 50. ****	14 5	0 6. ne	3.6

^{* :} p < 0.05; ** : p < 0.01; *** : p < 0.001; **** : p < 0.0001; ns : not significant

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Table 4. Self-efficacy in couples concordant and discordant for the psychological outcome measures. Presented are mean (SD) intra-couple differences (scores of females minus those of males).

	Grief	Grief (ICG)	Posttraumatic str	Posttraumatic stress symptoms (IES)	Psychological ma	Psychological malfunctioning (SCL)
	Concordant $(n = 35)$	Discordant (n = 24)	Concordant (n = 28)	Discordant (n = 19)	Concordant (n = 33)	Discordant (n = 18)
Self efficacy (GSE)						
Tl	-0.3(5.9)	-3.8 (6.8); *	-0.8(4.6)	-4.7 (6.8); *	-0.7(4.5)	-4.9 (8.3); *
T2	-0.1(5.6)	-4.3 (8.3); *	0(6.4)	-5.3 (5.6); **	0.5(5.9)	-5.5 (7.4); **
Τ3	-0.6 (4.6)	-5.5 (7.0); **	-1.3 (4.7)	-5.2 (7.5); *	-1.9 (4.6)	-5.4 (6.1); *

* : p < 0.05; ** : p < 0.01; unpaired t-test.

DISCUSSION

The present study shows similar trajectories of psychological functioning after termination of pregnancy in women and men, although the women had consistently higher scores than their partners on all psychological outcome measures. The outcome measures declined with time in both sexes and the fall-off from T1 to T2 and from T2 to T3 seen in women kept pace proportionally with that in men (Table 3). In addition, partners' scores were well correlated, which means that when one partner obtains a particular score (or is distressed) the other is likely to respond in a similar manner. However, it is important to note that observations made for women and men at a group level as described above do not necessarily imply correspondence within couples. R-values indicate the strength of a relation between two variables, not the agreement between them. Our data show many couples with considerable lack of agreement in score among the outcome measures (Figs. 1 - 4). Instead of looking for factors that may explain high scores in individual partners as is usually done, we sought to identify factors associated with intra-couple discrepancy above a certain level. Lower self-efficacy in women than in partners at T1 was found to be a risk factor for these women to also exhibit (much) higher scores than their partners on grief, posttraumatic stress, and generalised psychological malfunctioning both at T1 and on at least one subsequent occasion. If partners were not congruent as to the amount of support they received from each other at T1, this was also a factor associated with consistently more psychological problems in women compared with their partner. Advanced gestational age and having living children at TOP were associated with more grief in women than in partners in this study. Other factors previously found as predictors of poor psychological functioning in women^{2,3}, including religiosity and doubt about termination in the decision period, did not play a role at the couple level.

Although termination of pregnancy for fetal anomaly affects the couple as a unit, it may trigger (latent) personality characteristics differently between partners. Self-efficacy is generally considered a personality characteristic. The women in the couples discordant for the outcome measures had lower self-efficacy than their partners, while the males in the concordant and discordant couples had comparable levels of self-efficacy (Table 4). While partners of couples who were consistently concordant for psychological functioning appeared to be overall harmonious, the discordant couples were characterized by difficulties in females to adjust to the burden of their loss. Whether this is true for couples in which the males had the higher scores awaits further study in a much larger study sample.

It is concluded that within-couple discordance for psychological functioning 3-4 months after TOP is a risk factor for serious and enduring mental problems in the female partners. This is important for clinicians and care givers in counselling and thereafter. Counselling, therefore, should preferably be done with both partners present.

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