Factors Affecting the Grief Process After Perinatal Loss: A Case Control Study

Makiko Kishimoto (✉ kishimoto-m@ncchd.go.jp)

National Center for Child Health and Development

Arisa Yamaguchi

National Center for Child Health and Development

Marina Niimura

National Center for Child Health and Development

Miki Mizumoto

Shoin University

Tatsuo Hikitsuchi

National Center for Child Health and Development

Kohei Ogawa

National Center for Child Health and Development

Nobuaki Ozawa

National Center for Child Health and Development

Yoshiyuki Tachibana

National Center For Child Health and Development

Research article

Keywords: Perinatal loss, complicated grief, personality trait, developmental trait, coping style, attachment style

Posted Date: March 17th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-321422/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Factors associated with the grief process in response to perinatal loss have been investigated. However, few studies focused on the intrapersonal factors, such as developmental and personality traits. To investigate medical and psychosocial risk factors, including inter- and intrapersonal factors for the development of complicated grief following perinatal loss, while considering emotional support.

Methods: A total of 50 subjects who were treated for grief due to perinatal loss at the National Center for Child Health and Development were divided into two groups according to the treatment period (<6 months: n = 28; ≥6 months: n = 22). We compared medical and psychosocial variables between the two groups using the χ^2 test and t-test. All data were further analyzed using a logistic regression model to adjust for confounding effects.

Results: Subjects who had traits of developmental/personality disorders (adjusted odds ratio [OR]: 7.21, 95% confidence interval (CI): 1.21–42.9, P = .030), and those treated with psychoactive drugs (adjusted OR: 5.77, 95% CI: 1.09–30.5, P = .039) required a longer treatment period (≥6 months).

Conclusions: Patients with personality/developmental traits and those with active psychiatric symptoms required a more extended treatment period in response to loss, suggesting the accumulation of negative factors in these patients; thus, more intensive and specialized care is necessary for these patients. Precise analysis of the coping style, attachment style, communication skills, and life history including relationship with the original family of the patients may have implications on the approach toward patients with complicated grief after perinatal loss. Studies with larger sample size are required to increase the reliability of the present findings, and future research should address the effects of the differential attachment and coping styles of patients with developmental/personality traits on the grief process.

Background

Perinatal loss results in a significant psychological burden on individuals, some of whom develop a long-term persistence of pathologic reactions, termed as complicated grief (CG). Grieving is not a stage-like, predictable process across time, and there are different patterns of “normal” (as well as complicated) ways of grieving [1] as well as large individual/cultural differences in reactions to loss. There are few promising risk factors of CG, which are caused in response to perinatal loss. In order to provide support through a tailored approach in accordance with the needs of individual patients, we should examine the risk factors by performing further studies on bereaved families in various bereavement situations.

Demographic and psychosocial factors including older maternal age [2], a poor-quality intimate partner relationship [3, 4], lack of social support [2], couple with a history of infertility [4], and having no other living children [4], have been considered as high-risk factors for intense and prolonged grief due to perinatal loss. Pregnancy termination due to fetal anomaly can be considered as a traumatic life event

with a high psychological impact [5]. Similarly, a study showed that CG developed after spontaneous abortion in almost half of the women [6]. Moreover, bereaved women had higher rates of comorbid psychiatric disorders such as depression [2, 7], anxiety disorder [2, 3], and post-traumatic stress disorder [7, 8].

Jaaniste et al. reviewed parental bereavement following the death of a child. They demonstrated that factors influencing parental bereavement outcomes consist of (1) loss-oriented stressors (e.g., circumstances surrounding the death); (2) interpersonal factors (e.g., marital factors and social support); (3) intrapersonal factors (e.g., neuroticism, trait optimism, and attachment style); and (4) coping and appraisal [9]. Among these factors, intrapersonal resources such as personality traits and the attachment style of the deceased person have attracted more attention, especially in the field of prolonged grief response to the loss of the child [10]. As most factors associated with perinatal loss that have been explored thus far were loss-oriented factors or interpersonal factors, our aim is to examine intra- and interpersonal factors that have not been studied before as well as to replicate previous findings about risk factors of CG after perinatal loss in a Japanese cohort.

Methods

Subjects

This case-control study included 50 women referred to our division for treatment of grief due to perinatal loss by the Center for Maternal-Fetal, Neonatal and Reproductive Medicine of our institution between April 2017 and March 2019. This study was approved by the institutional review board of the National Institute for Child and Health Development (Approval No.2123, Approval Date:2020/2/28). Informed consent was obtained in the form of an opt-out option on the official website of the institution in 2019. All the study procedures were carried out in accordance with the principles in Declaration of Helsinki 1964 and its amendments later on.

Data collection

In addition to several risk factors identified in previous studies, we further examined the following factors from a clinical viewpoint. Regarding interpersonal risk factors, we hypothesized that a desire for another pregnancy may compensate for loss. In contrast, patients who experience emotional distress with the original family appeared to have difficulty in setting emotional boundaries with others, self-blame, and fear of forgetting about the loss. Disorganized attachment is more commonly observed in children who have experienced developmental trauma, occurring when their parent may be perceived as a source of harm [11]. Hence, we hypothesized that patients who have perceived psychological conflict with the original family may have an insecure attachment style, and consequently exhibit poor adjustment after perinatal loss. As an intrapersonal factor, vulnerability is expected in patients with a present/history of physical disease [12]. We additionally set receiving psychopharmacotherapy as an independent variable, indicating the presence of active psychiatric symptoms. In addition, many other key intrapersonal factors are related to the grieving process. For example, perception of self [13], and sharing experiences with

them would be a protective factor against CG even after a tragic loss experience [14]. We hypothesized that patients with developmental traits who have less flexibility, lack of communication skill [15], and a noneffective coping style [16], as well as those with traits of personality disorder who have a higher level of nonadaptive coping style and less mature defensive functioning [17] may develop CG after perinatal loss.

Data on the demographic characteristics and medical information were collected from the medical records between January 2019 and April 2019. In the present study, miscarriage, stillbirth, neonatal death (i.e., death of an infant in the first 28 days of life) and abortion were all considered perinatal loss. We defined “fetal disease” as chromosomal abnormality or malformation of the fetus or neonate directly linked to the cause of death. All subjects were screened and diagnosed by a psychiatrist or medical doctor engaged in Perinatal Mental Health care. Psychosocial information was collected during the interview. Developmental disorders were defined as autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD). We defined each trait as follows: autistic traits, for subjects meeting the A criterion of the ASD definition; ADHD traits, for subjects meeting both the A1 and A2 criteria of the ADHD definition; and personality traits, for subjects meeting both the A and B criteria of personality disorder. These were assessed by a certified psychiatrist of the Japanese Society of Psychiatry and Neurology based on 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). We defined pharmacotherapy as the use of antipsychotics, mood stabilizers, antidepressants, and anxiolytics, excluding hypnotics.

Statistical analyses

According to the indication that grief following miscarriage often declines significantly by 6 months [5], subjects were divided into two groups according to their treatment period (< 6 months/ $\geq$ 6 months). The variables listed in the table were analyzed using the χ^2 test for binomial variables and t-test for continuous variables to assess differences in the variables of the subjects between two groups with statistically significant differences ($P < .05$). In addition, a logistic regression analysis was performed for variables to avoid confounding effects with statistically significant differences ($P < .05$). The variance inflation factor was calculated by a multiple regression analysis using the same dependent and independent variables. Statistical analyses were performed using the EZR software program, version 1.5 (<http://www.jichi.ac.jp/saitama-sct/SaitamaHP.files/statmed.html>) [18].

Results

The demographic data and clinical characteristics are shown in Table 1. There were no significant differences noted between the two groups. The results of the comparison between the two groups, performed using the χ^2 test, are presented in Table 2. Twelve subjects met the A criterion of ASD, two subjects met both the A1 and A2 criteria of ADHD, and one subject met both the A and B criteria of borderline personality disorder. The study showed that treatment was significantly prolonged in subjects with a perceived interpersonal conflict with the original family ($\chi^2 = 9.092$, degrees of freedom [df] = 1, $P =$

.003), developmental/personality traits ($\chi^2 = 7.483$, $df = 1$, $P = .006$), history of psychiatric disorder ($\chi^2 = 9.092$, $df = 1$, $P = .003$), and receiving psychopharmacotherapy ($\chi^2 = 7.550$, $df = 1$, $P = .006$). After the adjustment by logistic regression, developmental/personality traits (adjusted odds ratio [OR]: 7.21, 95% confidence interval [CI]: 1.21–42.9, $P = .030$), and psychopharmacotherapy (adjusted OR: 5.77, CI: 1.09–30.5, $P = .039$) remained significant factors (Table 3).

Table 1. Demographic and clinical characteristics of the subjects in this study (n = 50)

Treatment period	<6 months		≥6 months		P-value
	n (%)		n (%)		
	28 (56)		22 (44)		
	Mean (SD)		Mean (SD)		
Treatment period (days)	63.18 (60.877)		679.95 (381.42)		
Age (years)	36.64 (5.38)		35.95 (5.35)		.66
Gravidity (number)	2.32 (1.83)		2.55 (1.53)		.65
Gestational age (weeks)	25.75 (10.25)		25.32 (9.90)		.88
	Yes	No	Yes	No	
	n (%)		n (%)		
Neonatal death	4 (14)	24 (86)	5 (23)	17 (77)	.44
Induced abortion	10 (36)	18 (64)	3 (14)	19 (86)	.08
Stillbirth	10 (42)	14 (58)	10 (59)	7 (41)	.28
Miscarriage	14 (58)	10 (42)	7 (41)	10 (59)	.28

$P < .05$ (t-test) denotes statistical significance

Table 2. Comparison of factors between the two groups according to the treatment period (<6 months vs. ≥6months) using the Pearson's χ^2 analysis (n = 50)

Treatment period	<6 months		≥6 months		P-value
	n (%)		n (%)		
	28 (56)		22 (44)		
Factor	Yes	No	Yes	No	
	n (%)		n (%)		
History of physical disorder	10 (36)	18 (64)	10 (45)	12 (55)	.49
History of miscarriage/stillbirth	10 (36)	18 (64)	11 (50)	11 (50)	.31
History of induced abortion	2 (7)	26 (93)	4(18)	18(82)	.23
Fetal disease/disorder	16 (57)	12 (43)	8(36)	14(64)	.14
Having child/children	9 (32)	19(68)	10(46)	12(54)	.34
Desire for future pregnancy	22 (96)	1 (4)	18 (90)	2 (10)	.47
Psychological conflict with partner	3 (11)	25 (89)	7 (32)	15 (68)	.06
History of psychiatric disorder	5 (18)	23 (82)	13 (59)	9 (41)	.003*
Psychological conflict with family of origin	5 (18)	23 (82)	13 (59)	9 (41)	.003*
Developmental/personality trait	4 (14)	24 (86)	11 (50)	11 (50)	.006*
Psychopharmacotherapy	7 (25)	21 (75)	14 (64)	8 (34)	.006*

*P < .05 (χ² test) denotes statistical significance

EZR software program, version 1.5 was used

Table 3. Results of the logistic regression analysis

Variable	Odds ratio	Adjusted odds ratio	95% CI	P-value	VIF
Psychological conflict with family of origin	6.64	3.33	0.73–15.2	.12	1.02
Developmental/personality trait	6.00	7.21	1.21–42.9	.030*	1.31
Psychopharmacotherapy	5.25	5.77	1.09–30.5	.039*	1.39
History of psychiatric disorder	6.64	1.97	0.41–9.4	.40	1.12

EZR software program, version 1.5 was used.

* $P < .05$ denotes statistical significance according to logistic regression analysis

CI: confidence interval; VIF: variance inflation factor

Discussion

The variables of the obstetric medical factor or loss-oriented stressors were not related to the grief process. As an intrapersonal factor, treatment was prolonged in patients who had received psychopharmacotherapy, and this was consistent with previous results showing an increased risk of CG in women who experienced perinatal loss, with a wide variety of psychiatric symptoms.

Developmental/personality traits (even within a subclinical level) were found to be an influential risk factor for a prolonged treatment period due to grief. However, studies on the relationship of developmental/personality traits and CG after perinatal loss are limited. It is suggested that autistic traits are positively associated with a tendency to use coping styles focused on emotions and negatively associated with a tendency to cope using social diversion [16]. Adults with ADHD are assumed to have a less adaptive coping style, stronger maladaptive schemata and a sense of inadequacy that is related to lower levels of emotional well-being [19]. In addition, borderline personality disorder has been associated with increased occurrence of insecure and especially unresolved attachment representations [20]. Unresolved attachment has been linked to impaired cognitive functioning, trauma-related psychopathology, and several biological impairments related to emotional dysregulation [20]. These three types of traits recognized in our sample may represent different patterns of coping and attachment styles. However, they share common challenges in accepting help from others and sharing experience, which are essential in recovery from loss [13, 14].

Of the subjects who developed CG and have developmental/personality traits ($n = 11$), most had perceived conflicts with the original family ($n = 8$). Nevertheless, of the subjects who did not develop CG and have developmental/personality traits ($n = 4$), only one subject had perceived conflicts with the original family. This finding implied that the interrelationship of these two factors underlies the psychopathology of CG. The pervasive and severe deficits often present in children with ASD may be associated with a decreased parenting efficacy and increased parenting stress [21, 22], which indicate a risk of deteriorating child-parent relationships [22]. Children with ADHD have higher exposure to adverse childhood experience (ACE) compared with children without ADHD [23]. Specific psychosocial risks and accumulation of risk factors include conflict within family systems, strong influence on child development and behavior [23, 24]. Therefore, both development traits and conflict within family or ACE may mutually and negatively influence the intrapersonal factors. In turn, this influence negatively affects the grief process.

Implications for practice and future research

Subjects with a high risk of developing CG could be identified in clinical settings by assessing development/personality traits and preexisting/comorbid psychiatric disorders. Further investigation is warranted to explore the types and mechanisms of attachment styles and coping styles of the patients, and the factors involved in the psychopathology of CG should be further investigated. Moreover, perceived interpersonal conflict with the subject's original family as a risk factor for developing CG, and its relationship with development/personality traits requires confirmation using a larger sample size.

The limitation of the present study, firstly, is the small sample size. Secondly, the diagnosis of developmental/personality disorders may be biased by subjective judgment because a precise psychological battery was not used. Thirdly, psychological data were all self-reported; therefore, they may have been associated with some biases. Owing to these limitations, the present study should be interpreted as a preliminary report. Nevertheless, our findings provide new insights that will aid in the further investigation of the factors affecting the relationships between psychosocial factors and perinatal loss.

Conclusions

Our results suggested that patients with traits of developmental disorder/personality disorder, and those with active psychiatric symptoms should be carefully monitored during the grieving process. Our results should be replicated in larger sample, and further investigation is warranted to differentiate between the types of insecure attachment styles and coping styles of the patients with complicated grief after perinatal loss, as they demand a differential approach.

Abbreviations

95% CI: 95% confidence interval;

ACE: adverse childhood experience;

ADHD: attention deficit hyperactivity disorder;

ASD: autism spectrum disorder;

CG: complicated grief;

DSM-V: Fifth edition of the Diagnostic and Statistical Manual of Mental Disorders;

OR: odds ratio

Declarations

Ethics approval and consent to participate

This study was approved by the institutional review board of the National Institute for Child and Health Development (Approval No.2123, Approval Date:2020/2/28). Informed consent was obtained in the form of an opt-out option on the official website of the institution in 2019. The method of consent was approved by the ethics committee. All the study procedures were carried out in accordance with the principles in Declaration of Helsinki 1964 and its amendments later on.

Consent for publication

This article does not disclose any personal identifiable data in any form and privacy rights of the participants were observed. Hence, consent to publication is not applicable here.

Availability of data and materials

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

This study did not receive any financial support.

Authors' contribution

Conceptualization – Makiko Kishimoto

Data curation - Makiko Kishimoto, Arisa Yamaguchi, Marina Niimura, Miki Mizumoto, Tatsuo Hikitsuchi

Formal analysis - Makiko Kishimoto, Yoshiyuki Tachibana

Funding acquisition - Not applicable

Investigation - Makiko Kishimoto

Methodology - Makiko Kishimoto, Nobuaki Ozawa, Yoshiyuki Tachibana

Project administration - Makiko Kishimoto

Resources - Makiko Kishimoto

Software - Makiko Kishimoto, Yoshiyuki Tachibana

Supervision - Kohei Ogawa

Validation - Kohei Ogawa

Visualization - Makiko Kishimoto

Roles/Writing - original draft - Makiko Kishimoto

Writing - review & editing – Makiko Kishimoto

Acknowledgements

None

References

1. Stroebe M, Schut H, Boerner K. Cautioning health-care professionals. *Omega (Westport)*. 2017;74:455–73. doi:10.1177/0030222817691870.
2. Bhat A, Byatt N. Infertility and perinatal loss: when the bough breaks. *Curr Psychiatry Rep*. 2016;18:31. doi:10.1007/s11920-016-0663-8.
3. Hutti MH, Armstrong DS, Myers JA, Hall LA. Grief intensity, psychological well-being, and the intimate partner relationship in the subsequent pregnancy after a perinatal loss. *J Obstet Gynecol Neonat Nurs*. 2015;44:42–50. doi:10.1111/1552-6909.12539.
4. Tseng YF, Cheng HR, Chen YP, Yang SF, Cheng PT. Grief reactions of couples to perinatal loss: A one-year prospective follow-up. *J Clin Nurs*. 2017;26:5133–42. doi:10.1111/jocn.14059.
5. Kersting A, Wagner B. Complicated grief after perinatal loss. *Dial Clin Neurosci*. 2012;14:187–94. doi:10.31887/DCNS.2012.14.2/akersting.
6. Kulathilaka S, Hanwella R, de Silva VA. Depressive disorder and grief following spontaneous abortion. *BMC Psychiatry*. 2016;16:100. doi:10.1186/s12888-016-0812-y.
7. Gold KJ, Leon I, Boggs ME, Sen A. Depression and posttraumatic stress symptoms after perinatal loss in a population-based sample. *J Womens Health (Larchmt)*. 2016;25:263–9. doi:10.1089/jwh.2015.5284.
8. Burden C, Bradley S, Storey C, Ellis A, Heazell AEP, Downe S, et al. From grief, guilt pain and stigma to hope and pride—a systematic review and meta-analysis of mixed-method research of the psychosocial impact of stillbirth. *BMC Preg Childbirth*. 2016;16:9. doi:10.1186/s12884-016-0800-8.
9. Jaaniste T, Coombs S, Donnelly TJ, Kelk N, Beston D. Risk and resilience factors related to parental bereavement following the death of a child with a life-limiting condition. *Children (Basel)*. 2017;4:96. doi:10.3390/children4110096.
10. Kearney JA, Byrne MW. Understanding parental behavior in pediatric palliative care: attachment theory as a paradigm. *Palliat Support Care*. 2015;13:1559–68. doi:10.1017/S147895151300134X.
11. Kaiser S, Zimmet M, Fraser J, Liddle K, Roberts G. Recognition of attachment difficulties and developmental trauma is the responsibility of all paediatricians. *J Paediatr Child Health*. 2018;54:1110–6. doi:10.1111/jpc.14154.

12. Nakajima S. Complicated grief: recent developments in diagnostic criteria and treatment. *Philos Trans R Soc Lond B Biol Sci.* 2018;373:20170273. doi:10.1098/rstb.2017.0273.
13. Vegsund HK, Reinfjell T, Moksnes UK, Wallin AE, Hjemdal O, Eilertsen MB. Resilience as a predictive factor towards a healthy adjustment to grief after the loss of a child to cancer. *PLOS ONE.* 2019;14:e0214138. doi:10.1371/journal.pone.0214138.
14. Levi-Belz Y, Lev-Ari L. Is there anybody out there? Attachment style and interpersonal facilitators as protective factors against complicated grief among suicide-loss survivors. *J Nerv Ment Dis.* 2019;207:131–6. doi:10.1097/NMD.0000000000000940.
15. Bertollo JR, Strang JF, Anthony LG, Kenworthy L, Wallace GL, Yerys BE. Adaptive behavior in youth with autism spectrum disorder: the role of flexibility. *J Autism Dev Disord.* 2020;50:42–50. doi:10.1007/s10803-019-04220-9.
16. Pisula E, Danielewicz D, Kawa R, Pisula W. Autism Spectrum Quotient, coping with stress and quality of life in a non-clinical sample—an exploratory report. *Health Qual Life Outcomes.* 2015;13:173. doi:10.1186/s12955-015-0370-x.
17. Van Wijk-Herbrink M, Andrea H, Verheul R. Cognitive. *J Pers Disord.* 2011;25:634–44. doi:10.1521/pedi.2011.25.5.634.
18. Kanda Y. Investigation of the freely available easy-to-use software “EZR” for medical statistics. *Bone Marrow Transplant.* 2013;48:452–8. doi:10.1038/bmt.2012.244.
19. Miklósi M, Máté O, Somogyi K, Szabó M. Adult attention deficit hyperactivity disorder symptoms, perceived stress, and well-being: the role of early maladaptive schemata. *J Nerv Ment Dis.* 2016;204:364–9. doi:10.1097/NMD.0000000000000472.
20. Buchheim A, Diamond D. Attachment and borderline personality disorder. *Psychiatr Clin North Am.* 2018;41:651–68. doi:10.1016/j.psc.2018.07.010.
21. Hoover DW, Kaufman J. Adverse childhood experiences in children with autism spectrum disorder. *Curr Opin Psychiatry.* 2018;31:128–32. doi:10.1097/YCO.0000000000000390.
22. Karst JS, Van Hecke AV. Parent and family impact of autism spectrum disorders: a review and proposed model for intervention evaluation. *Clin Child Fam Psychol Rev.* 2012;15:247–77. doi:10.1007/s10567-012-0119-6.
23. Brown NM, Brown SN, Briggs RD, Germán M, Belamarich PF, Oyeku SO. Associations between adverse childhood experiences and ADHD diagnosis and severity. *Acad Pediatr.* 2017;17:349–55. doi:10.1016/j.acap.2016.08.013.
24. Cummings EM, Koss KJ, Davies PT. Prospective relations between family conflict and adolescent maladjustment: security in the family system as a mediating process. *J Abnorm Child Psychol.* 2015;43:503–15. doi:10.1007/s10802-014-9926-1.