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Grief reactions, depression, and anxiety following job loss: patterns and correlates

Janske H. W. van Eersel ^a, Toon W. Taris ^b and Paul A. Boelen ^{a,c}

^aDepartment of Clinical Psychology, Utrecht University, Utrecht, The Netherlands; ^bDepartment of Social, Health and Organizational Psychology, Utrecht University, Utrecht, The Netherlands; ^cARQ National Psychotrauma Centre, Diemen, The Netherlands

ABSTRACT

Background: Research on grief, depression, and anxiety reactions following job loss is sparse. More insight in this matter could be important for the development of preventive and curative interventions targeting different manifestations of emotional distress following job loss, including grief reactions.

Objective: The aim of this study was to examine job loss-related grief reactions in relation to depression and anxiety symptoms.

Method: A sample of 525 Dutch workers (59.8% women, mean age of 50.6 years) who had lost their job was recruited. Latent class analysis was used to examine whether separate classes could be distinguished based on the endorsement of grief reactions and symptoms of depression of anxiety. We also examined factors associated with class membership.

Results: Four classes were identified, including a so-called 'mixed', a 'grieving', a 'depressed', and a 'resilient' class. Job loss circumstances and coping strategies (but not socio-demographic and work characteristics) were associated with class membership.

Conclusion: These results shed light on unique characteristics that might be targeted with specific clinical methods to increase mental health of different subgroups of individuals confronted with job loss.

Reacciones de duelo, depresión y ansiedad luego de la pérdida del empleo: patrones y correlatos

Antecedentes: La investigación acerca de las reacciones de duelo, depresión y ansiedad luego de la pérdida del empleo es escasa. Una mayor profundización en esta área podría ser importante para el desarrollo de intervenciones preventivas y curativas dirigidas a las diferentes manifestaciones del sufrimiento emocional que ocurre luego de la pérdida del empleo, incluyendo las reacciones de duelo.

Objetivo: El objetivo de este estudio fue examinar las reacciones de duelo asociadas a la pérdida del empleo en relación a síntomas de depresión y ansiedad.

Método: Se reclutó una muestra de 525 trabajadores holandeses (59,8% mujeres, edad promedio de 50.6 años) que perdieron su empleo. Se utilizó análisis de clases latentes para examinar si se podían distinguir clases separadas basándose en la confirmación de reacciones de duelo y síntomas de depresión y ansiedad. También examinamos factores asociados con la pertenencia a las clases.

Resultados: Se identificaron cuatro clases, que incluyeron una clase llamada 'mixta', una 'en duelo', una 'deprimida' y una 'resiliente'. Las circunstancias de la pérdida del empleo y las estrategias de afrontamiento (pero no las características del empleo ni las sociodemográficas) se asociaron con la pertenencia a las clases.

Conclusión: Estos resultados revelaron las características únicas que podrían ser blanco de métodos clínicos específicos para mejorar la salud mental de los diferentes subgrupos de personas que enfrentan la pérdida del empleo.

失业后的哀伤反应, 抑郁和焦虑: 模式和相关

背景: 对于失业后的哀伤, 抑郁和焦虑反应的研究很少。在此问题上获得更多的见识对于开发包括哀伤反应在内的失业后情绪困扰的不同表现形式的预防和治疗干预可能很重要。

目的: 本研究旨在考查失业相关的哀伤反应与抑郁和焦虑症状的关系。

方法: 招募了525名失业的荷兰工人(女性59.8%, 平均年龄50.6岁)。潜在类别分析用于考查是否可以基于有哀伤反应和焦虑抑郁症状来区分出不同类别。我们还考查了所属类别的相关因素。

结果: 确定了四个类别, 包括所谓的'混合', '哀伤', '抑郁'和'韧性'类别。失业状况和应对策略(但不包括社会人口统计学和工作特性)与所属类别相关。

结论: 这些结果揭示了针对提高面临失业的不同亚群心理健康特定临床方法的独特特征。

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PALABRAS CLAVE

Pérdida del empleo; reacciones de duelo; depresión; ansiedad; afrontamiento; análisis de clases latentes

关键词

失业; 哀伤反应; 抑郁; 焦虑; 应对; 潜在类别分析

HIGHLIGHTS

- Research on grief, depression, and anxiety reactions following job loss is sparse.
- Latent class analysis revealed four distinct classes.
- Job loss circumstances and coping strategies (but not socio-demographic and work variables) were associated with class membership.

1. Introduction

Employment is more than just a way to make a living; it provides structure to the day, a reason to get up in the morning, goals to pursue, meaning, identity, and status (Jahoda, 1981). Hence, it is not surprising that involuntary job loss contributes to a decrease in psychological, physical, and social well-being (e.g. McKee-Ryan, Song, Wanberg, & Kinicki, 2005). For example, job loss has been found to be related to increases in depression (Kim & Von Dem Knesebeck, 2016), anxiety, and psychosomatic symptoms (Paul & Moser, 2009), loss of psychosocial assets, stigmatization, social withdrawal, family disruption (Brand, 2015), and increased risk of substance use (Modrek, Stuckler, McKee, Cullen, & Basu, 2013). A meta-analysis of longitudinal studies has shown that job loss can cause severe emotional distress (Paul & Moser, 2009). Job loss may yield transient reactions of grief (Brewington, Nassar-mcmillan, Flowers, & Furr, 2004; Climent-Rodríguez, Navarro-Abal, López-López, Gómez-Salgado, & García, 2019; Diaz et al., 2015; cf. Lorenz, Maercker, & Bachem, 2020, who focused on adjustment disorder after involuntary job loss). However, in a minority of people grief reactions following job loss can become persistently disabling and distressing¹ (Papa & Lancaster, 2016; Van Eersel, Taris, & Boelen, 2019).

1.1. Grief reactions and symptoms of depression and anxiety following job loss

Loss can be defined as a reduction of resources in which a significant investment has been made (Harvey & Miller, 1998). Loss of work can provoke multiple cascading losses (e.g. reduction of social contacts, status, and self-esteem), leading to elevated levels of stress. Interestingly, prior research has shown that a reduction of income following job loss was not significantly related to the intensity of job loss-related grief reactions (Papa & Maitoza, 2013; Van Eersel, Taris, & Boelen, 2020a); apparently, loss of income is not the main driver of such grief reactions. According to conservation of resources theory, the emotional distress resulting from the partial or full loss of a resource depends on a person's investment in that resource, the number of remaining resources, and the appraisal of possible threats (Hobfoll, Tirone, Holmgreen, & Gerhart, 2016). Basic assumptions about the sense of self, the world, the future, and others require reconstruction to incorporate the new reality. This is the case following different kinds of losses, including bereavement, loss of bodily functions, victimization through violence (Harvey & Miller, 1998), job loss, divorce (Papa, Lancaster, & Kahler, 2014), romantic break-up (Boelen & Reijntjes, 2009), and natural disaster (Shear et al., 2011).

The intensity of grief reactions has been associated with disruption of a person's day-to-day life, access to meaningful activities, valuable interactions, social relationships, loss of identity, self-esteem, and self-efficacy (Papa & Lancaster, 2016). Grief reactions are characterized by separation distress combined with difficulties accepting the loss, yearning, difficulty finding meaning in life, feeling bitterness over the loss, identity confusion, and difficulty moving on with life, causing severe distress and disability on most days (Prigerson et al., 2009). Job loss-related grief reactions can occur in conjunction with symptoms of depression and anxiety, and may also precipitate elevations of symptoms of depression and anxiety over time (Van Eersel, Taris, & Boelen, 2020b). Nonetheless, recent *variable-centred* studies have shown that depression, anxiety and grief reactions can be distinguished empirically (Papa & Maitoza, 2013; Van Eersel et al., 2019).

A variable-centred approach postulates a linear structure which is common for a homogenous population and, as a result, does not allow detecting nuances within the population, such as the existence of latent classes (Meeusen, Meuleman, Abts, & Bergh, 2018). However, it may be possible that different subgroups of people can be distinguished among people who have lost their jobs, based on the endorsement job-related grief reactions and symptoms of depression and anxiety. One way to study this notion is by using a *person-centred* approach which may help to improve insight in the interrelations among job loss-related grief, depression, and anxiety reactions. In addition, it is important to increase knowledge on variables related to class membership (e.g. coping style, demographics, or loss characteristics) to inform theorizing and the development of interventions targeting distress following job loss.

1.2. Latent class analysis

Latent class analysis (LCA) is a person-centred statistical method that identifies subgroups of individuals who share a set of common characteristics (Lanza & Cooper, 2016). As a primarily data-driven approach, it is useful to explore a data set and to determine the direction of further theory and research. Since LCA has not previously been used to study grief, depression, and anxiety reactions following job loss, we formulated our expectations concerning the characteristics of latent classes on the basis of earlier research among people confronted with bereavement loss. Several studies have used LCA to identify subgroups of bereaved people, based on symptoms of complicated grief (CG) – often also referred to as prolonged grief disorder, depression, and post-traumatic stress disorder (PTSD). For instance, Djelantik, Smid, Kleber, and Boelen (2017) examined

CG, depression, and PTSD levels among bereaved individuals, and identified three classes: a resilient class, a CG class, and a mixed class of CG and PTSD. Lenferink, De Keijser, Smid, Djelantik, and Boelen (2017) obtained similar results in their sample with disaster-bereaved individuals: a resilient class, a CG class, and a combined class of CG, depression, and PTSD symptoms. Taking these findings into account, we anticipated that a sample of job loss-related grief, depression, and anxiety reactions would dissolve in perhaps as many as four classes: a resilient class, a job loss-related grief class, a depression class, and a mixed class with job loss-related grief, depression, and anxiety.

1.3. Coping, grief, and resilience

In addition to examining the clustering of job loss-related grief, depression, and anxiety reactions into different classes, it was deemed relevant to explore which variables are related to class membership. LCA studies on emotional responses to bereavement loss have shown that the resilient pattern (i.e. low levels of distress) is the most common response (Bonanno, Boerner, & Wortman, 2008; Lenferink, Nickerson, De Keijser, Smid, & Boelen, 2018). Resilience can be described as the ability to maintain relatively stable, healthy levels of functioning when confronted with a potentially highly disruptive event (Bonanno, 2004). In the case of job loss, Galatzer-Levy, Bonanno, and Mancini (2010) found that 82% of the participants of their study experienced no long-term effects on life satisfaction in response to their unemployment. Individuals with a resilient response to job loss tended to use more adaptive coping strategies than people with higher levels of emotional distress, while this latter group of people appeared to use maladaptive coping strategies relatively often (Sojo & Guarino, 2011). Coping refers to the effort a person undertakes to manage the demands of a situation, when these demands are appraised as taxing or even exceeding the person's capability to control, reduce, or tolerate the stressful conditions (Folkman & Lazarus, 1988). In several studies, the use of maladaptive coping strategies has been linked to diminished well-being during unemployment (Brand, 2015; Gowan, 2014; McKee-Ryan et al., 2005) and persistent job loss-related grief reactions (Papa & Maitoza, 2013; Van Eersel et al., 2020a). Therefore, it was considered conceivable that following job loss, different forms of coping were associated with membership of different classes characterized by different symptom patterns.

1.4. The present study

The current study aimed to identify: (1) subgroups of individuals who involuntarily lost their job, and (2) predictors of subgroup membership. Specifically, the

first aim was to examine whether subgroups of individuals could be identified, based on their levels of grief, depression, and anxiety reactions following job loss. Based on the results from LCA studies on bereavement cited above and factor analyses of job loss-related grief (Papa & Maitoza, 2013; Van Eersel et al., 2019), we expected that various subgroups would emerge with distinct and differentiated symptom profiles (e.g. high grief, low depression, low anxiety or low grief, high depression, low anxiety).

The second aim was to investigate socio-demographic and loss-related characteristics associated with the subgroup membership. Little is known about the correlates of subgroups of persons characterized by different patterns of grief, depression, and anxiety symptoms following job loss. However, Brewington et al. (2004) found that the *abruptness* of the loss, *feeling unprepared* for this loss, and an *inadequate notice of dismissal* were risk factors for developing grief symptoms following job loss. These findings can be linked to Janoff-Bulman's (1999) theory that postulates that after experiencing stressful life events, people tend to hold on to their basic assumptions that the world is fair, predictable, and controllable. Events that disrupt these assumptions, such as involuntary job loss, can lead to emotional distress and problems.

Finally, there is some evidence that maladaptive coping strategies are associated with job loss-related grief (Papa & Maitoza, 2013), depressive symptoms (Hasselle, Schwartz, Berlin, & Howell, 2019), and diminished well-being during employment (Gowan, 2014). This might be due to maladaptive coping yielding a decrease in available resources, which can force a person to fall back on avoidant coping strategies to deal with the changed reality (Hobfoll et al., 2016). In our study, we anticipated that participants in the relatively more disturbed classes would experience their job loss as more unexpected and more unjustified, and that they would endorse a higher use of maladaptive coping strategies and a lower use of adaptive and social coping strategies.

2. Method

2.1. Procedure and participants

The study was approved by the Ethical Review Board of the faculty of Social Sciences of Utrecht University (FETC 16–111). The data collection took place between 2016 and 2019. During this period unemployment rates in the Netherlands decreased from 6.0% in 2016 to 3.2% in 2019 (CBS, 2020). Dutch individuals who had involuntarily lost their job were recruited via two channels: (1) meetings on the impact of the job loss, and (2) social (media) networks. Potential participants received a short explanation (either in person or in writing) of the goals and general content of the

study. If they were interested, the researcher handed out the information letter or they could click on a link to read this letter online. After reading the information letter, people decided whether they wanted to participate in the study. Informed consent was obtained from all participants ($N = 592$). After signing the consent form, 88% completed the survey either using paper and pencil ($n = 44$) or by completing an online questionnaire in a secured online area ($n = 481$). The 'paper and pencil' group was recruited via meetings on the impact of job loss, and the 'online' group via social (media) networks. Groups did not differ in terms of the variables assessed in the study, except for educational level ($\chi^2 (df = 2, n = 525) = 18.6, p < .001$). In the online group more people held a college or university degree (58.8%) than in the paper-and-pencil group (28.9%). A part of the data on grief reactions, depression, and anxiety was used in other parts of our research programme (Van Eersel et al., 2019, 2020a).

The data from people who did not complete the grief, depression, and anxiety questionnaires ($N = 37$) or who resigned voluntarily from their job ($N = 30$) were excluded. The participants in the final sample for this study ($N = 525$) were on average 50.6 ($SD = 9.0$) years old and included 211 men (40%) and 314 women

(60%). Their level of education varied, with 48 people having completed primary education only (9%), 182 people having completed secondary education (35%), and 295 people holding a college or university degree (56%). Table 1 presents all socio-demographics and work characteristics.

2.2. Measures

2.2.1. Socio-demographics

The following socio-demographic data and work characteristics were collected from all participants: gender, age, educational level, income reduction, years of employment, and time passed since the job loss (Table 1).

2.2.2. Job loss grief scale (JLGS)

For the measurement of persistent job loss-related grief reactions, the validated 33-item JLGS (Van Eersel et al., 2019) was administered. With their job loss in mind, participants rated the extent to which they experienced the reactions listed (e.g. 'I can't accept the loss of my job' and 'Memories about the loss of my job upset me') during the previous month on a 5-point scale (0 = *never* to 4 = *always*). Because of the sample size and in an attempt to reduce the

Table 1. Socio-demographic and loss-related characteristics plus symptom-levels across classes.

Variables	Total ($N = 525$)	Class 1: mixed ($n = 87$)	Class 2: grief ($n = 134$)	Class 3: depressed ($n = 67$)	Class 4: resilient ($n = 237$)	Significance test for differences between groups
Socio-demographic						
Gender (N (%))						$\chi^2 (3, N = 525) = 2.71$
Men	211 (40.2)	30 (34.5)	51 (38.1)	31 (46.32)	99 (46.9)	
Women	314 (59.8)	57 (65.5)	83 (61.9)	36 (53.7)	138 (43.9)	
Age (M (SD))	50.6 (9.0)	48.8 (9.2)	50.7 (8.4)	49.6 (7.0)	51.4 (9.7)	$F(3,501) = 1.95$
Education (N (%))						$\chi^2 (6, N = 525) = 7.80$
Low	48 (9.1)	5 (5.7)	10 (7.5)	8 (11.9)	25 (10.5)	
Middle	182 (34.7)	40 (46.0)	44 (32.8)	22 (32.8)	76 (32.1)	
High	295 (56.2)	42 (48.3)	80 (59.7)	37 (55.2)	136 (57.4)	
Work						
Income reduction (N (%))						$\chi^2 (9, N = 507) = 13.80$
0–25%	139 (27.4)	15 (17.4)	44 (33.6)	18 (28.6)	62 (27.3)	
25–50%	198 (39.1)	31 (36.0)	47 (35.9)	27 (42.9)	93 (41.0)	
50–75%	111 (21.9)	28 (32.6)	22 (16.8)	12 (19.0)	49 (21.6)	
75–100%	59 (11.6)	12 (14.0)	18 (13.7)	6 (9.5)	23 (10.1)	
Years of employment (N (%))						$\chi^2 (12, N = 525) = 17.85$
<1 year	65 (12.4)	18 (20.7)	14 (10.4)	12 (17.9)	21 (8.9)	
1–3 years	117 (22.3)	13 (14.9)	24 (17.9)	15 (22.4)	65 (27.4)	
3–5 years	68 (13.0)	9 (10.3)	19 (14.2)	7 (10.4)	33 (13.9)	
5–15 years	142 (27.0)	25 (28.7)	41 (30.6)	17 (25.4)	59 (24.9)	
>15 years	133 (25.3)	22 (25.3)	36 (26.9)	16 (23.9)	59 (24.9)	
Passed time since job loss (M (SD))	21.6 (21.1)	21.1 (19.1)	19.4 (18.4)	25.0 (27.6)	22.0 (21.2)	$F(3,516) = 1.12$
Loss circumstances (M (SD))						
Perceived suddenness and no suitable farewell	10.3 (3.7)	11.1 (3.8)	11.0 (3.8)	10.5 (3.4)	9.6 (3.6)	$F(3,504) = 5.18^{**}$
Perceived injustice	6.0 (1.8)	6.4 (1.8)	6.6 (1.6)	6.0 (1.9)	5.6 (1.8)	$F(3,502) = 12.16^{***}$
Coping						
Maladaptive coping (M (SD))	10.6 (3.5)	14.6 (3.4)	11.2 (2.7)	11.2 (2.7)	8.6 (2.5)	$F(3,498) = 104.94^{**}$
Adaptive coping (M (SD))	23.1 (4.5)	20.6 (3.8)	23.0 (3.9)	22.3 (4.6)	24.4 (4.6)	$F(3,499) = 17.31^{**}$
Social coping (M (SD))	14.5 (3.6)	14.5 (3.3)	15.3 (3.5)	13.3 (3.8)	14.5 (3.7)	$F(3,498) = 4.10^*$
Symptom-levels						
Grief (M (SD))	12.9 (9.4)	27.2 (5.5)	17.3 (4.8)	13.2 (5.3)	5.0 (3.6)	$F(3,521) = 574.31^{**}$
Depression (M (SD))	6.0 (5.2)	13.8 (3.7)	4.7 (2.5)	10.9 (3.3)	2.5 (2.4)	$F(3,521) = 423.75^{**}$
Anxiety (M (SD))	3.3 (3.9)	9.1 (4.5)	2.5 (2.1)	5.0 (3.5)	1.2 (1.8)	$F(3,521) = 186.11^{**}$

Grief = job loss-related grief; dep = depression; anx = anxiety. * $p < .01$. ** $p < .001$.

complexity of the analysis, only the ten items included in the short version of the JLGS (i.e. the Job Loss Grief Scale–Short Form, JLGS-SF) were used in the analysis. A prior study (Van Eersel et al., 2019) showed that the JLGS-SF possessed good psychometric properties, similar to the extended JLGS. For instance, the items formed a unidimensional scale ($\chi^2 = 75.79$; $df = 32$; $\chi^2/df = 2.37$; CFI = .99; TLI = .99; RMSEA = .07), that could be distinguished from symptoms of anxiety and depression, thus supporting the scale's discriminant validity. In the present sample Cronbach's α for these ten items was .94.

2.2.3. Depression anxiety stress scale (DASS-21)

For the measurement of depression and anxiety symptoms, the DASS-21 (Lovibond & Lovibond, 1995) was used. Participants rated the extent to which they had experienced the twenty-one symptoms listed during the preceding week (e.g. 'I had nothing to look forward to', 'I felt afraid for no reason') on a 4-point scale (0 = *never or rarely* to 3 = *always or frequently*). In the present sample Cronbach's α for depression was .93 and for anxiety it was .88.

2.2.4. Job loss circumstances scale (JLCS)

A six-item questionnaire was designed for the current research to tap specific information about circumstances of the job loss, including its perceived suddenness, injustice, and lack of control over the dismissal. These items are based on the notion that a stressful life event can shatter beliefs that the world is fair and predictable (Janoff-Bulman, 1999) and prior evidence that inadequate notice of dismissal is associated with job loss-related grief (Brewington et al., 2004). The JLCS measures three different aspects, each measured with two items. 'Suddenness' was assessed with items (2) 'Before my dismissal there were signs of my approaching dismissal (e.g. my workload was cut down, advice was given to go look for another job)', and (3) 'My dismissal came totally unexpected to me' (reversed). The 'unfairness' of the dismissal was measured with items (4) 'My consent to my dismissal felt voluntary' and (5) 'My dismissal feels unfair' (reversed). 'Lack of control' was measured with items (1) 'My employer has spoken to me about my approaching dismissal' and (6) 'I said goodbye in a way that felt appropriate to me'. Participants rated the extent to which they agreed with each statement (1 = *totally agree* to 4 = *totally disagree*).

Exploratory factor analysis revealed that two factors had an eigenvalue that exceeded 1.00 (2.67 and 1.08, respectively). The first factor explained 44.4% and the second factor 17.9% of the variance in the six items. Four items loaded strongly on the first factor: item 1 (.85), item 2 (.84), item 3 (.78), and item 6 (.51). Below this factor is referred to as 'perceived suddenness and no suitable farewell' (Cronbach's α of these

items was .75). Two items loaded strongly on the second factor: item 4 (.80) and item 5 (.81). This factor is referred to as 'perceived injustice'. If a scale consists of two items, the alpha coefficient underestimates the true reliability of the scale, so the Pearson correlation coefficient is recommended instead (Eisinga, Te Grotenhuis, & Pelzer, 2013). The Pearson correlation coefficient for these two items was .36 (a *medium* effect, cf. Cohen, 1988).²

2.2.5. Brief COPE

Coping behaviour was measured with Carver's (1997) Brief COPE. Participants rated the extent to which they agreed with the scale's twenty-eight statements (1 = *never or rarely* to 4 = *very frequently*). Since we were mainly interested in maladaptive, adaptive, and social coping, we followed an earlier study from this project (Van Eersel et al., 2020a) to construct these three factors from the subscales of the Brief COPE. As an index of maladaptive coping we summed the scores of the Brief COPE subscales: denial, behavioural disengagement, and self-blame. As an index of adaptive coping we summed the scores of the subscales: active coping, acceptance, positive reframing, and planning. Finally, as an index of social coping we summed the scores of the subscales: emotional support, instrumental support, and venting of emotions. In the present sample Cronbach's α for maladaptive coping was .75, for adaptive coping .83, and for social coping .80.

2.3. Statistical analyses

LCA was conducted using Mplus version 8.1 (Muthén & Muthén, 1998–2017). To reduce the complexity of the analyses and in keeping with common practice, LCA was performed using dichotomized indicators of job loss-related grief, depression, and anxiety (Clogg & Goodman, 1985). For job loss-related grief, items scored as 0 = *never* or 1 = *rarely* were coded as 'reaction is (largely) absent', and items scored as 2 = *sometimes*, 3 = *often*, or 4 = *always* as 'reaction is (largely) present'. For depression and anxiety, items scored as 0 = *did not apply to me at all* or 1 = *applied to me to some degree* were coded as 'reaction is (largely) absent', and items scored as 2 = *applied to me to a considerable degree* or 3 = *applied to me very much*, as 'reaction is (largely) present'.

The following indices were examined to determine the optimal number of classes: the log likelihood, the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the sample size-adjusted Bayesian information criterion (SS-BIC), the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR), the Bootstrap likelihood ratio test (BLRT), and the entropy. Lower log likelihood, AIC, BIC, and SS-BIC values indicate better fit (Nylund, Asparouhov, & Muthén, 2007); higher entropy values indicate fewer classification errors

and lower bias in the determination of class membership (Van de Schoot, Sijbrandij, Winter, Depaoli, & Vermunt, 2017). A p -value below .05 for the BLRt and the VLMR indicates a significant improvement of the fit of the model under consideration, compared to the model with one class less (Nylund et al., 2007). Nylund et al. (2007) recommend to rely not solely on statistical indicators for the selection of the optimal class solution; rather, the interpretability of classes, the size of classes (to avoid too few observations within a cell), and consistency with prior research also should be taken into account.

Chi-square tests and analyses of variance (ANOVAs) were conducted in SPSS version 26 to examine whether membership of a particular class was associated with socio-demographics, loss-related characteristics (e.g. age, educational level, time passed since loss, job loss circumstances) and coping. For the measure of income reduction and for the six items of the JLCS, data were missing for 18 participants (3%). There were no data missing for job loss-related grief, depression, and anxiety. To handle missing data, cases were removed pairwise for optimal use of all available data. First, for each variable, we examined whether it was associated with class membership. Next, predictors that were significant in these univariate analyses were included in a multinomial logistic regression analyses to examine which of these variables distinguished best between classes, controlling for the shared variance of these variables. The data set is freely retrievable (Van Eersel, Taris, & Boelen, 2021).

3. Results

3.1. Latent class analyses

Table 2 presents the fit indices of the solutions with one to seven classes. The log likelihood test, AIC, and SS-BIC presented results which are closely related for the 5-class solution, the 6-class solution, and the 7-class solution. The value of the BIC was practically the same for the 4-class solution, the 5-class solution, and the 6-class solution, although the BIC was the lowest for the 5-class solution. In conjunction, these results suggest that overall the 5-class solution had the best fit to the data. However, the VLMR test showed the 2-class solution to have a significantly better fit to

the data than the 1-class solution, and the 4-class solution yielded a significant better fit than the 3-class solution. According to this measure, solutions with more than four classes did not improve significantly on the 4-class solution. Finally, the 5-class solution could not be interpreted meaningfully; for instance, there were two classes with almost identical grief symptoms and low scores on depression and anxiety. Therefore, the 4-class model was selected as the optimal solution. Figure 1 (and the supplementary table) present the symptom prevalence in the four classes; values $> .50$ were considered as indicating a high probability of item endorsement.

The interpretation of the four classes of this solution was fairly straightforward. The first class (16.6%) was characterized by relatively low probabilities for six anxiety symptoms and high probabilities for all job loss-related grief reactions, all depression symptoms, and one anxiety symptom ('feeling scared'), and was therefore labelled as the 'mixed class'. The second class (25.5%) evidenced comparatively low probabilities for all depression symptoms, all anxiety symptoms, and three job loss-related grief reactions ('feeling numb', 'partly vanished', and 'shattered view of the world'), as well as relatively high probabilities of seven job loss-related grief reactions. It was therefore labelled as the 'grieving class'. The third class (12.8%) was characterized by relatively low probabilities of all anxiety symptoms, three depression symptoms, and most job loss-related grief reactions, and high endorsement of four depression symptoms ('could not seem to get going', 'nothing to look forward to', 'down-hearted and blue', and 'worthlessness') and two job loss-related grief reactions ('personal disaster' and 'feeling on edge or jumpy'). Consequently, it was named the 'depressed class'. Finally, the fourth class (45.1%) was characterized by low probabilities of endorsement of all items and was labelled 'resilient class'. Note that the scores of the members of these four classes were compared between classes, rather than with an external criterion. For instance, the 'depressed class' was given this label because individuals in this class reported relatively high levels of depressive symptoms as compared to the other three classes. However, this does *not* imply that the members of this class are clinically depressed, but only that their scores on this set of symptoms were *comparatively* high vis-à-vis those of the other three

Table 2. Fit indices for best fit model latent class analyses.

Model tested	Log likelihood	AIC	BIC	SS-BIC	Entropy	VLMR p	BLRt p
1 class	-6617.18	13282.35	13384.67	13308.49			
2 classes	-5147.70	10393.39	10602.30	10446.76	0.94	< .001	< .001
3 classes	-4823.78	9795.56	10111.05	9876.16	0.90	.08	< .001
4 classes	-4658.52	9515.05	9937.12	9622.87	0.92	< .05	< .001
5 classes	-4562.98	9373.97	9902.63	9509.02	0.89	.64	< .001
6 classes	-4499.42	9296.84	9932.08	9459.12	0.89	.21	< .001
7 classes	-4464.93	9277.85	10019.68	9467.36	0.90	.52	< .001

AIC = Akaike information criterion; BIC = Bayesian information criterion; SS-BIC = sample size adjusted Bayesian information criterion (SS-BIC); VLMR = Vuong-Lo-Mendell-Rubin; BLRt = Bootstrap likelihood ratio test.

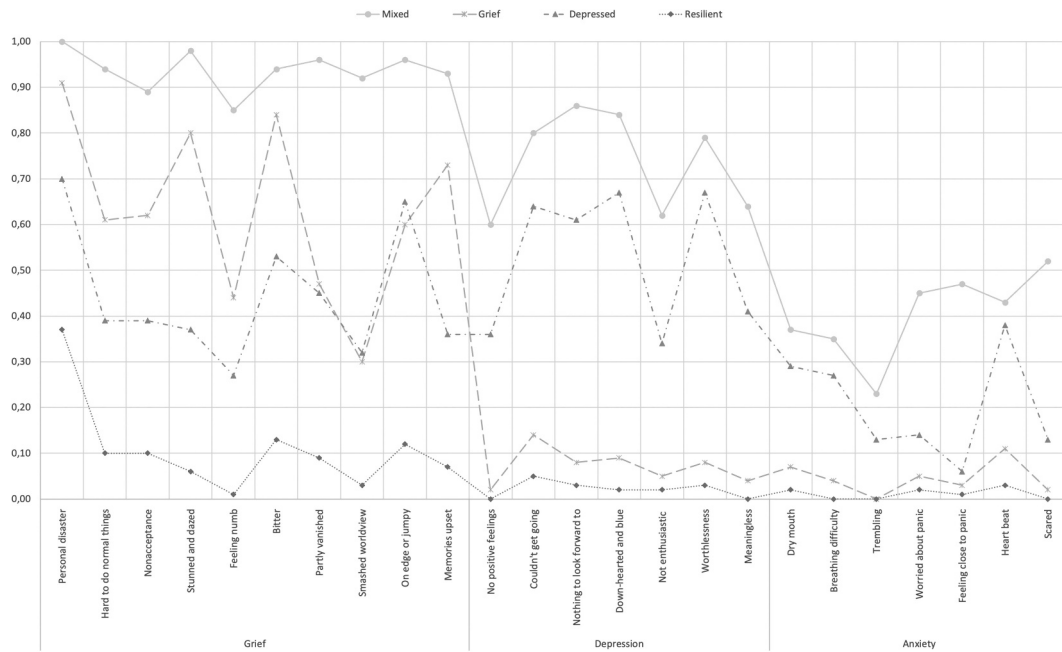


Figure 1. Probability estimates of item endorsement for all participants and for the four-class solution. The associated table can be found as supplementary file.

classes. Similar reservations apply to the labels of the other three classes. Figure 1 (and the supplementary table) present the probabilities of endorsement of the symptoms for all four classes.

3.2. Predictors of class membership: univariate analyses

Information on socio-demographical variables, loss-related variables, and indices of the coping strategies of all classes is presented in Table 1. The means of the socio-demographic and work variables did not differ significantly across classes, except for circumstances of the job loss. These differed across all classes on both aspects assessed by the Job Loss Circumstances Scale: the degree to which the job loss was experienced as ‘unexpected without a suitable goodbye’ and as ‘unfair’. Post-hoc analyses showed that members of the mixed and the grieving classes had higher scores on the index for ‘unexpected without a suitable goodbye’ from the Job Loss Circumstances Scale, compared to the resilient class. Post-hoc analyses indicated that participants in both the mixed and grieving class considered their job loss significantly more often as unfair, compared to the resilient class.

Maladaptive coping differed between groups (Table 1); post-hoc analyses revealed significant differences between almost all classes, except between the grieving and depressed class. Further, all classes differed on adaptive coping; post-hoc analyses showed that the resilient class scored significantly higher than all other classes, with the grieving class scoring significantly higher than the mixed class. Further, social coping also differed between classes; post-hoc analyses

revealed that the grieving class employed significantly more social coping strategies than the depressed class.

With respect to differences in overall job loss-related grief reactions (i.e. the summed JLGS scores), post-hoc analyses indicated significant differences among all four classes, with the mixed class having the highest JLGS total score, followed by the grieving class, then followed by the depressed class, and with the lowest JLGS score reported by the resilient class. Similar findings emerged when looking at the summed depression items of the DASS-21, where the mixed class had the highest score followed by the depressed class, the grieving class, and the resilient class. Finally, for the total scores on the anxiety items of the DASS-21, all classes differed significantly as well. Again, Table 1 shows that the mixed class represented the highest score with the depressed class as runner-up, followed by the grieving class, and the resilient class again had the lowest score.

3.3. Predictors of class membership: multinomial logistic regression analysis

A multinomial logistic regression analysis was conducted to examine which of the variables that were significantly associated with class membership in the univariate analyses, were still associated with class membership after controlling for the shared variance between variables. Total scores for job loss-related grief, depression, and anxiety were not included in these analyses. Table 3 summarizes the outcomes of this analysis. Class membership was differentiated by job loss circumstances; participants who experienced their dismissal as unjustified were more likely to be

Table 3. Multinomial logistic regression predicting class membership.

Variables	B	SE(B)	Exp(B)	95% confidence interval		<i>p</i>
Class 1 (mixed) vs Class 4 (resilient)						
Perceived suddenness and no suitable farewell	-.034	.050	0.967	0.876	1.067	.501
Perceived injustice	.187	.104	1.205	0.983	1.479	.073
Maladaptive coping	.678	.065	1.970	1.733	2.239	.000
Adaptive coping	-.176	.043	0.838	0.771	0.912	.000
Social coping	.049	.052	1.050	0.948	1.162	.349
Class 2 (grief) vs Class 4 (resilient)						
Perceived suddenness and no suitable farewell	.005	.037	1.005	0.935	1.081	.893
Perceived injustice	.332	.082	1.394	1.186	1.638	.000
Maladaptive coping	.332	.050	1.394	1.264	1.537	.000
Adaptive coping	-.093	.032	0.911	0.855	0.971	.004
Social coping	.092	.038	1.096	1.017	1.182	.017
Class 3 (depressed) vs Class 4 (resilient)						
Perceived suddenness and no suitable farewell	-.007	.047	0.993	0.905	1.090	.887
Perceived injustice	.087	.096	1.091	0.904	1.317	.363
Maladaptive coping	.368	.059	1.444	1.288	1.620	.000
Adaptive coping	-.070	.038	0.932	0.865	1.005	.068
Social coping	-.070	.049	0.933	0.847	1.027	.156
Class 1 (mixed) vs Class 3 (depressed)						
Perceived suddenness and no suitable farewell	-.027	.055	0.973	0.873	1.085	.626
Perceived injustice	.100	.113	1.105	0.885	1.379	.379
Maladaptive coping	.310	.063	1.364	1.204	1.544	.000
Adaptive coping	-.106	.046	0.899	0.822	0.984	.021
Social coping	.118	.058	1.125	1.005	1.260	.041
Class 2 (grief) vs Class 3 (depressed)						
Perceived suddenness and no suitable farewell	.012	.048	1.012	0.920	1.112	.808
Perceived injustice	.245	.103	1.278	1.044	1.564	.018
Maladaptive coping	-.036	.055	0.965	0.866	1.075	.515
Adaptive coping	-.023	.040	0.977	0.904	1.056	.561
Social coping	.161	.051	1.175	1.064	1.298	.001
Class 1 (mixed) vs Class 2 (grief)						
Perceived suddenness and no suitable farewell	-.039	.047	0.962	0.878	1.055	.408
Perceived injustice	-.145	.103	0.865	0.707	1.057	.157
Maladaptive coping	.346	.056	1.413	1.267	1.576	.000
Adaptive coping	-.083	.040	0.920	0.851	0.995	.036
Social coping	-.043	.049	0.958	0.870	1.054	.374

Values in bold indicate a significant difference between the compared classes.

assigned to the grieving class than to the resilient or depressed classes.

Class membership also differed as a function of coping (Table 3). The use of maladaptive coping strategies was more strongly endorsed in the mixed, the grieving, and the depressed classes compared to the resilient class; the mixed class showed the highest effect ($\text{exp}(B) = 1.97$) compared to the resilient class. In comparison to the depressed and grieving classes, the mixed class showed a significant higher endorsement of maladaptive coping. The use of adaptive coping was more strongly endorsed by participants included in the resilient class, compared to the mixed, the grieving, and the depressed classes. The strongest significant effect was found for the mixed class as compared to the grieving class ($\text{exp}(B) = 0.92$), with the mixed class making less use of adaptive coping strategies. A similar result was found in comparison to the depressed class, with the mixed class having a lower endorsement of adaptive coping relative to the depressed class. Finally, social coping was more strongly employed by the grieving class compared to the depressed and the resilient classes. Compared to the mixed class, the depressed class showed the strongest effect ($\text{exp}(B) = 1.18$) and a lower endorsement of social coping.

4. Discussion

The aim of this study was to use LCA to examine whether subgroups could be identified among people who involuntarily lost their jobs, based on different patterns of endorsement of reactions of grief, depression, and anxiety. The first main result was that four classes were identified: (i) a mixed class characterized by endorsement of most of the items representing grief, depression, and anxiety reactions, (ii) a grieving class, (iii) a predominantly depressed class, and (iv) a resilient class. These findings indicate that people confronted with involuntary job loss can be distinguished in terms of the dominance of particular emotional reactions, rather than by a graded severity of a general post-loss response. This accords with the notion that these reactions represent multiple dimensions rather than one single dimension of job loss-related distress. The emergence of a class characterized by elevated grief (but not depression and anxiety) aligns with earlier findings that job loss-related grief reactions can be distinguished from depression and anxiety symptoms after involuntary job loss (Papa & Maitoza, 2013; Van Eersel et al., 2019). We did not find a class that mainly displayed anxiety symptoms. According to Osman et al. (2012) the items of the DASS-21 have stronger associations with the general

distress dimension than with the domain-specific dimensions: depression, anxiety, and stress. This implies a possible lack of sensitivity of the DASS-21 when it comes to distinguishing between depression and anxiety symptoms. The anxiety items of the DASS-21 mainly represent symptoms of physiological hyperarousal, such as 'I experienced trembling' and 'I experienced breathing difficulty'. It might be possible that such physical symptoms are more commonly observed following bereavement loss or psycho-trauma than after job loss.

A second main finding was that a distinct class could be identified that was characterized by the presence of job loss-related grief reactions, but not by elevated reactions of depression and anxiety. This indicates that job loss-related grief is distinct from depressive and anxiety symptoms following job loss which accords with earlier variable-centred research (Papa & Maitoza, 2013; Van Eersel et al., 2019). However, the first item of the job loss grief scale ('The loss of my job feels like a personal disaster') was found to be endorsed across all classes and, as such, does not appear to make a relevant distinction among the classes. Two items ('I feel bitter about the loss of my job' and 'I have felt on edge, jumpy or easily startled since the loss of my job') appeared to be strongly associated to depression and did not clearly distinguish between the depressed and grieving classes. Items that were related to grief and that were distinctive for depression and anxiety symptoms are: 'I think about my job so much that it is hard for me to do the things I normally do', 'I can't accept the loss of my job', and 'I feel stunned and dazed over the loss of my job'. These symptoms are characteristic of elevated job loss-related grief among those exposed to job loss.

A third main finding was that the resilient class comprised approximately half of the sample (45%). From prior research on bereavement loss, it is known that the majority of people confronted with loss shows no or very few symptoms of distress (Bonanno et al., 2008). The size of the resilient class in the present study suggests that the same applies to job loss. This is in line with prior research (Galatzer-Levy et al., 2010) in which the majority of the people showed a resilient response after job loss, while a minority developed long-term increased levels of emotional distress (e.g. depression or anxiety symptoms).

A fourth main finding was that class membership was unrelated to most of the socio-demographic variables and work characteristics, including the time passed since dismissal. However, other variables, including aspects of an individual's experience of his/her dismissal were associated with class membership. If the dismissal was considered as unfair, sudden, involuntary, and when there was no opportunity for an appropriate goodbye to the former job, there was

lower probability of being assigned to the resilient class. Note that due to the cross-sectional design of this study no conclusions can be drawn concerning the causal direction of the association between job loss circumstances and class membership. Multinomial regression analyses revealed that, in comparison to the resilient and the depressed class, endorsement of experiencing the dismissal as unfair increased the chance of being assigned to the grieving class. This accords with prior findings that an inadequate notice of dismissal (Brewington et al., 2004) and believing that the world is unfair (Papa & Maitoza, 2013) can be a risk factor for the development of grief reactions following job loss. The feeling of unfairness might also be fuelled by the loss event itself. This event can shatter an individual's basic beliefs about the world, others, and the self, which can subsequently change one's sense of justice and fairness in general (Janoff-Bulman, 1999; Park, 2010). It would be interesting to further explore the linkage between the perceived degree of unfairness of dismissal and the intensity of emotional distress following job loss over time in longitudinal research, to examine the temporal relationship between job loss circumstances and class membership.

A final main finding was that endorsement of maladaptive coping strategies was highest in the mixed class and lowest in the resilient class, whereas endorsement of adaptive coping strategies was highest in the resilient class and lowest in mixed class. These findings agree with prior research findings showing that maladaptive coping strategies were associated with elevated job loss-related grief reactions (Papa & Maitoza, 2013; Van Eersel et al., 2020a). However, social coping strategies were endorsed strongest in the grieving class and the least in the depressed class. Considering results from bereavement research (Burke, Neimeyer, & McDevitt-Murphy, 2010), this could imply that people who mainly experience grief symptoms might have the tendency to reach out to others, where as people who mainly experience depressive symptoms tend to withdraw from others.

A tendency towards maladaptive coping strategies, and relatively higher levels of job loss-related grief, depression, and anxiety might be provoked through a lack of available resources to deal with the changed reality. According to the conservation of resources theory, emotional distress tends to increase when valuable resources are threatened, like in the case of job loss (Hobfoll, 1989). Weak resources (e.g. in terms of money, self-esteem, or social network) make it more difficult to handle stressful events, which can lead to a vicious cycle of further depletion of resources and more stress. In an attempt to maintain resources and minimize the net loss, individuals tend to employ (and possibly drain) other resources to help them in the short run and, as a result, make themselves more

vulnerable in the long run (Hobfoll et al., 2016). In future research, it would be interesting to examine the direction of the relationship between maladaptive coping, job loss-related grief, depression, anxiety within the theoretical framework of the conservation of resources theory.

4.1. Limitations

The main limitations of this study are the following. First, although we can measure job loss-related grief reactions, much remains unknown about this phenomenon. There are commonalities between grief reactions following bereavement, job loss, divorce (Papa et al., 2014), romantic break-ups (Boelen & Reijntjes, 2009), and natural disaster (Shear et al., 2011). It is also known (and in line with the current study) that job-loss related grief reactions can be distinguished from depression and anxiety symptoms after dismissal (Papa & Maitoza, 2013; Van Eersel et al., 2019). However, more longitudinal research combined with clinical interviews is necessary to fully comprehend this phenomenon and to provide a solid time-frame during which these job loss-related grief reactions may reflect a 'normal' adjustment process and when such reactions become signs of disturbed adjustment. In spite of this limitation, the present study contributes to our limited knowledge about job loss-related grief reactions and on the impact that involuntary job loss can have on an individual's well-being and mental health.

Second, we have only examined a limited number of possible predictors of class membership: general sociodemographic variables, work characteristics and coping strategies. It would be interesting to further explore other possible predictors, like negative cognitions about the loss event, the self, others, the future and the world. Since these types of cognitions (negative a priori beliefs or negative beliefs activated by the job loss) could be related to the intensity someone experiences grief reactions, depression, and anxiety following involuntary job loss (Papa & Lancaster, 2016). The JLCS has not been validated in independent studies, hence the outcomes based on this scale should be considered with caution.

Finally, this study was conducted in the Netherlands, where unemployment benefits are relatively well arranged. Some studies indicate that there is no significant relation between income reduction and job loss-related grief reactions (Papa & Maitoza, 2013; Van Eersel et al., 2020a). However, other studies have shown that higher unemployment benefits were related to higher mental health due to lower financial strain and lower time pressure (Wanberg, Van Hooft, Dossinger, Van Vianen, & Klehe, 2020). It is conceivable that the limited income reduction in the present sample did not lead to a substantial increase of financial strain due to

specific contextual factors (e.g. the level of unemployment benefits, the presence of savings or a partner earning a good income); that might have influenced our results for the relation between income reduction and class membership. Future research may include specific contextual factors (e.g. financial strain, unemployment benefits, and breadwinnership) to gain more insight into the associations of these factors with reactions of job loss-related grief, depression, and anxiety.

4.2. Implications

The results of this study suggest that both the extent to which individuals experience their dismissal as unfair, and higher use of maladaptive coping strategies are associated with more intense reactions of job loss-related grief, depression, and anxiety or combination of these reactions. This is in line with the research of Ricketson, Dodd, Zion, and Winarnita (2020); in their sample a third of the people who were laid off experienced their job loss as a negative event and described the process of dismissal as humiliating and insulting. For example, one of their participants stated not getting a farewell from the management, and although time passed by, he/she was still consumed with anger about the way it all went down.

There are often legal and regulatory issues influencing how and when employees are notified about possible redundancy and dismissal. Additionally, there is the need to control access to company resources such as computer databases, and the need to balance sharing information with keeping workers productive. Taking this into account, employers can use this knowledge to their advantage when giving notice, to reduce the level of emotional stress before, during and after the job loss. They could consider involving people more during the termination process, as far as possible within the given context of protecting company resources. Openness in communication, consistent feedback, and being respectful to each other could decrease the degree to which a person experiences the job loss as sudden or unfair. Employers might consider discussing with the person to think about an appropriate way to say goodbye to the company, their colleagues, and customers and, in doing so, provide the opportunity to the person to regain some sense of control. They could also hold an exit interview for remaining questions, closure, appreciation, and achievements.

Screening for reactions of grief, depression, and anxiety after dismissal can yield a better picture of the mental health issues experienced by this group and provides the opportunity for timely and targeted interventions. For instance, depressive symptoms require a different approach to increase positive affect (e.g. scheduling enjoyable activities, cognitive restructuring of negative views of the self and life) than job

loss-related grief symptoms (e.g. enhance emotion-affect regulation, cognitive restructuring misinterpretations of the job loss). Alleviating these reactions seems necessary to increase the mental health of individuals confronted with involuntary job loss and their chance of sustainable re-employment.

Notes

1. In other studies, 'job loss-related grief reactions' were called 'job loss-related complicated grief symptoms' to describe the same phenomenon (Papa & Lancaster, 2016; Papa et al., 2014; Papa & Maitoza, 2013; Van Eersel et al., 2019, 2020a, 2020b). In this study, the term 'job loss-related grief reactions' was used to clarify that we are *not* referring to disordered grief as currently defined in DSM-5 and ICD-11 and also to emphasize that we do *not* argue that 'job loss-related grief reactions' or 'job loss-related complicated grief symptoms' should be included as a novel disorder in the existing classification systems.
2. The two JLCS scales (perceived suddenness/no suitable farewell and perceived injustice, respectively) were significantly related to job loss-related grief symptoms ($r = .21$ and $.27$), the brief cope subscale 'denial' ($r = .31$ and $.28$), and the brief cope subscale 'acceptance' ($r = .15$ and $.15$), attesting to the concurrent validity of the JLCS.

Authors contributions

JE and PB designed the study. JE collected the data. JE and TT conducted the statistical analyses. JE wrote the draft of the manuscript. All authors critically reviewed and improved draft versions of the manuscript. All authors read and approved the final version of the manuscript.

Data availability statement

The data set is freely retrievable (Van Eersel et al., 2021).

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ORCID

Janske H. W. van Eersel  <http://orcid.org/0000-0003-3574-1119>

Toon W. Taris  <http://orcid.org/0000-0003-1946-3307>

Paul A. Boelen  <http://orcid.org/0000-0003-4125-4739>

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