Journal of Adolescence 76 (2019) 75–87

Contents lists available at ScienceDirect

Journal of Adolescence

journal homepage: www.elsevier.com/locate/adolescence

Stressful life events and identity development in early and mid-adolescence

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ARTICLE INFO

Keywords:
Stressful life events
Identity
Adolescence
Social support
Neuroticism

ABSTRACT

Introduction: In the past, stressful life events have been consistently linked to developmental outcomes such as well-being and psychopathological problems. Theory on identity postulates that stressful life events may also predict a regression in identity development. While some support for this link has been found in adult populations, it is important to examine this in adolescence, a time marked by identity development as well as stressful transitions and experiences.

Methods: In the present study, we examined whether having to repeat a grade and death of a family member or friend were related to regressive change in educational and relational identity in a sample of 840 Dutch adolescents (49% female, *M*age W1 = 12.4) drawn from a large ongoing longitudinal study. We also investigated whether the impact of the events was moderated by neuroticism, and parental and peer support. All analyses were controlled for age, educational level, and sex.

Results: Results of latent difference score models indicated that experiencing an event did not predict regressions in identity. Congruence between the domain of the event and identity (i.e., educational or relational) did not affect the strength of the effects. Neuroticism and parental and peer support did not significantly moderate this link. However, social support was related to relational and educational identity.

Conclusions: The link between stressful events and identity may not be as straightforward as would be expected based on identity theory, as our results did not show evidence for a link between these events and change in identity for all adolescents.

1. Introduction

Adolescence is a time of continuous change, in which individuals reorient themselves with regard to who they are, how they came to be that person, and who they want to become (Kroger, 2008). The development of identity is an important task in adolescence, and might become even more salient following the occurrence of life events. Life events have been found to be a strong predictor of various developmental outcomes, such as academic achievement (Andrews & Wilding, 2004) and mental health (Laceulle et al., 2014).

Stressful life events can also profoundly impact adolescents' identity by bringing about feelings of discontinuity, forcing

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https://doi.org/10.1016/j.adolescence.2019.08.006
Received 16 February 2019; Received in revised form 10 August 2019; Accepted 12 August 2019
Available online 28 August 2019

adolescents to reconsider the self in order to integrate the event into their identity (Anthis, 2002; McAdams, 2001). This effect may be especially apparent in adolescence, a period characterized by development and transition (Lewin, 1939), as life events that occur during transitional periods are thought to have more or longer-lasting effects (Graber, Brooks-Gunn, & Peterson, 1996). The effect of life events on identity has as of yet received little empirical investigation in adolescence (however, see Van Doeselaar, Klimstra, Denissen, Branje, & Meeus, 2018).

In the present study, we investigated whether the experience of stressful life events predicts identity change in early- to mid-adolescence. In addition, as social support and neuroticism have been found to buffer against or exacerbate the impact of stress (e.g., Vinkers et al., 2014; Yang et al., 2010), we examined whether the link between stressful events and identity is moderated by neuroticism and parental and peer support.

1.1. Adolescent identity development

For adolescents living in Western societies, developing a stable and coherent sense of self is a key developmental task (Erikson, 1950, 1968). Whereas accomplishment of this task is considered pivotal for healthy development in adolescence and beyond (Erikson, 1950), failure to achieve this has been linked to maladaptive outcomes, such as internalizing and externalizing problems (Crocetti, Klimstra, Hale, Koot, & Meeus, 2013; Meeus, Iedema, Helsen, & Vollebergh, 1999).

Adolescents develop a sense of identity in multiple domains of life, of which the most salient generally are the relational and educational domain (Heaven, Ciarrochi, & Vialle, 2008). Relational identity is the extent to which adolescents derive self-certainty and confidence in the future from their relationships with friends, and might play a role in their decisions to form or terminate friendships (Grotevant, 1987). Educational identity reflects the extent to which adolescents have explored and are committed to their education, and may express itself in motivation for different school subjects, and in the process of selecting a vocational profile in secondary school and a higher educational track in tertiary education. Despite theory suggesting an increase in commitment and a decrease in explorative behavior across adolescence, empirical research has evidenced high mean-level stability of identity throughout adolescence (Meeus, Van de Schoot, Keijsers, Schwartz, & Branje, 2010). However, individual differences in trajectories exist and have been stressed in previous person-centered studies on identity development (e.g., Meeus et al., 2010). Some adolescents are stably committed, others are stably exploring, and again others move from exploring to committed across time. This emphasizes the importance of examining predictors of these individual differences in trajectories. As identity change might especially occur in response to life events that make an identity domain become salient, it is vital to examine the role of life events in shaping and changing adolescent identity.

1.2. Identity and stressful life events

Adolescence is characterized by a marked increase in non-normative events that may put stress on youth (Larson & Ham, 1993). As adolescents spend most time in and attach most value to the relational and educational domains (Grotevant, 1987; Smetana, Campione-Barr, & Metzger, 2006; Turner & Cameron, 2016), stressful events interfering with these domains may especially affect adolescents' identity. Events in these domains are relatively common, with nearly 60% of European adolescents reporting to have lost a friend or family member in the past year (Madge et al., 2011), and 5.2% of Dutch adolescents having to repeat a grade (Central Bureau for Statistics, 2018).

The experience of stressful life events is thought to increase the saliency of identity. Regarding trauma, a particular kind of stressful life event, many World War II veterans had lost a sense of sameness and continuity of the self, according to Erikson (1968). This sense of discontinuity may in turn force individuals to reconsider their identity by integrating the experienced event into the self (Anthis, 2002, 2011; McAdams, 2001). The notion that stressful experiences may bring about identity change has been corroborated in work on trauma (Anthis, 2002; Kroger, 1996; Kroger & Green, 1996). For instance, adult women reported weaker commitments and more exploration and reconsideration behaviors following a traumatic event as compared to before (Kroger, 1996). Interestingly, events appeared especially strongly related to matching (e.g., relational event to relational identity) domains of identity. Although the consequences of traumatic events may be more far-reaching than other stressful events, a similar process may be at play in which stressful life events affect one's sense of identity.

Based on research in adulthood and theory on life events and identity, it could be expected that in the aftermath of a stressful event, such as the death of a family member or a friend or having to repeat a grade, adolescents temporarily show more explorative behavior and weaker commitments in order to reestablish the (changed) self in the changed context. After losing a family member or friend, lower levels of exploration, and either sticking with current commitments or regressing to diffusion can be expected, as was found in a study with adults (Kroger & Green, 1996). One recent study, using data from the same longitudinal project as the current study, has examined this in adolescence, and found that adolescents who experienced more negative life events had weaker occupational, but not relational, commitments three years later than individuals who experienced fewer events (Van Doeselaar et al., 2018).

However, this latter study examined between-person instead of within-person effects on identity, and it is known that results at the between-person level may not translate to the within-person level (e.g., Hamaker, 2012). Furthermore, it only examined the link with commitment, while work in adulthood emphasizes the importance of examining exploration and reconsideration as well (Kroger, 1996; Kroger & Green, 1996). In the present study, we therefore examined between-person differences in within-person change in identity (commitment, exploration, reconsideration) following the experience of stressful events. We examined the effect of specific events, as events may affect certain identity domains more strongly than others (Kroger, 1996). Losing a close relationship

may be particularly relevant for relational identity. Although relational identity was assessed in the domain of friends and the experience of death could involve either a friend or family member, both family and friends represent important sources of companionship (Buhrmester, 1996) and support (Scholte, Van Lieshout, & Van Aken, 2001) during adolescence, and help adolescents form a coherent sense of self (Becht et al., 2017). As such, the loss of a close other, either a family member or a friend, may be important for how one thinks about and is committed to other close relationships. In contrast, having to repeat a grade might be more impactful for educational identity.

1.3. Person and environment as moderators

Past research has identified several individual and relational factors that make adolescents more or less resilient to the impact of stressful life events (e.g., Grant et al., 2006). In the present study we examined the impact of one intra-individual (i.e., neuroticism) and one inter-individual (i.e., social support) factor. Individuals high in neuroticism are more likely to experience an event as stressful (Brown & Rosellini, 2011), which may increase the negative consequences for their mental health (e.g., Jeronimus, Riese, Sanderman, & Ormel, 2014; Ormel et al., 2013). In addition, rumination, a key feature of neuroticism (Chen, 2007), is more likely to take place when events are important (Matarazzo, 2009) and may also increase sensitivity to the stress of a life event (Watkins, Moberly, & Moulds, 2008). Regarding relational characteristics, support from family and friends has been found to weaken the effect of stressful events on mental health (e.g., DuBois, Felner, Meares, & Krier, 1994; Murberg & Bru, 2004; Yang et al., 2010), suggesting that social support acts as a buffer. Thus, we expected neuroticism to exacerbate, and parental and peer support to weaken, the association between life events and identity.

1.4. The current study

We examined whether the death of a family member or close friend and having to repeat a grade predict early- to mid-adolescent relational and educational identity in the year after the event, and one year later. Based on previous work on trauma and identity, the experience of a stressful life event was hypothesized to predict a decrease in commitment. For the educational event, we additionally expected an increase in exploration and reconsideration in the aftermath of the event. For the relational event, a decrease in exploration and reconsideration was expected. These effects were hypothesized to be especially strong when the domain of the event matched the identity domain (e.g., death of a family member or friend and relational identity). Moreover, while we expected decreases in commitment following the occurrence of an event, we did not exclude the possibility that after working through the event, it may strengthen adolescents' existing identities by confirming their commitments or by providing more clarity about what they want in life. Finally, the effect of the experience of a stressful event was thought to be less strong for individuals who were lower in neuroticism and perceived higher support from family and friends.

2. Method

2.1. Participants and procedure

Data were used from a subsample of adolescents (N = 840) participating in the longitudinal CONflicts And Management Of RElationships (CONAMORE) project (Meeus, 2016). The first five waves were collected annually, and the sixth wave was collected several years after Wave 5. The total sample of the CONAMORE study consisted of two age cohorts with a total of 1,331 adolescents. To ensure that participants were still in adolescence at the time of the event, we only included data from the younger cohort (i.e., age 12 or 13 at Wave 1), and who had data on repeating a grade (n = 840, 49% female). Only a subsection of this sample (n = 682, 55% female) was asked about experiencing deaths.

For the CONAMORE project, adolescents were recruited from several randomly selected secondary schools in the province of Utrecht, the Netherlands. Participating adolescents and their parents were informed about the general aims of the study and provided written informed consent. Confidentiality of responses was assured, and participants were told that they could withdraw at any time during the study. Respondents received €10 per annual assessment.

2.2. Measures

2.2.1. Life Events

To assess experienced *deaths of a family member or friend* (from here on referred to as the relational event), we used an adapted version of the Life History Calendar (LHC; Freedman, Thornton, Camburn, Alwin, & Young-DeMarco, 1988; Meeus, 2009), which was completed during the sixth wave of data collection. Participants reported whether they had experienced deaths in their family or among intimate friends since they were 12, and, if so, when this happened (i.e., date) and who had died (i.e., someone from their immediate family, another family member, or an intimate friend). Because of the relatively low prevalence of these events, we did not distinguish between types of relations. Using the reported dates, we calculated between which waves the event took place. Past research revealed acceptable reliability and validity of this instrument (Caspi et al., 1996).

Whether or not participants had *repeated a grade* (referred to as the educational event) was calculated based on their answers to the question about the grade they were in, which was asked every wave. They were concluded to have repeated a grade when the same or a lower grade was reported in a subsequent year.

2.2.2. Identity

Relational and educational identity were measured each wave with the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti, Rubini, & Meeus, 2008), a self-report instrument consisting of 13 items which are rated on a 5-point scale ranging from 1 (*completely true*) to 5 (*completely untrue*). The U-MICS taps into the identity processes of commitment (5 items), in-depth exploration (5 items), and reconsideration of commitment (3 items). Example items of the scale are "My best friend/education gives me certainty in life" (commitment), "I think a lot about my best friend/education" (in-depth exploration), "I often think it would be better to try to find a different best friend/education" (reconsideration). To facilitate interpretation, we reversed the scoring so that high scores indicate high commitment, exploration, and reconsideration. Validity and reliability of the scale were acceptable in previous research (Crocetti et al., 2008). In the present study, reliability coefficients ranged between .78 and .92 (see Table S1 of the Supplementary Material for a complete overview).

2.2.3. Neuroticism

Neuroticism was measured each wave with six items of the shortened Dutch version of the Quick Big Five questionnaire, which were evaluated on a 7-point Likert scale, ranging from 1 (*completely incorrect*) to 7 (*completely correct*; Vermulst & Gerris, 2005). An example item indicating high neuroticism is "I am irritable". Past research revealed acceptable validity and reliability (Akse, Hale, Engels, Raaijmakers, & Meeus, 2004). In the present study, the reliability coefficient ranged between .82 and .83 (see Table S1).

2.2.4. Support from parents and best friend

Each wave, adolescents reported on the support from parents and their best friend with 12 items from the Network of Relationship Inventory (NRI; Furman & Buhrmester, 1985), rated on a 5-point scale ranging from 1 (*a little or not at all*) to 5 (*more is not possible*). An example item of the scale is "How much does your best friend/mother/father really care about you?". Scores for mother and father were averaged to form a general score of parental support. Previous work revealed acceptable validity and reliability of the NRI (Edens, Cavell, & Hughes, 1999). Moreover, previous work on CONAMORE data revealed adequate factor loadings for the support scale (De Goede, Branje, & Meeus, 2009). In the present study, reliability of the support scale for the different relationships (i.e., mother, father, best friend) ranged between .82 and .93.

2.3. Statistical strategy

We first examined missingness in our data. In the relational event sample, missingness was between 2.2 and 4.4% for the identity scales at T_1 and T_2, and between 22.3 and 22.4% at T_3. Missingness for the moderators ranged between 1.6 and 29.8%. For the educational event sample, missingness was in the range of 0.4–2.0% for identity at T_1 and T_2, and 53.8–54.3% at T_3. Missingness ranged from 0.1 to 4.5% for the moderators. The higher missingness at T_3 was expected, as we included events that were reported at the last annual measurement (i.e., events that took place between Wave 4 and 5). Because the data were centered around the event, this meant that for those adolescents with an event reported at Wave 5, there was no second post-event measurement. In each of the analyses, we used Full Information Maximum Likelihood estimation to deal with missing data.

As our data spanned five years, we then checked for measurement invariance across all waves for both relational and educational identity. Findings of these analyses suggested that requirements were met for strict invariance for both identity domains (for a full description of the analyses, see Supplementary Material, pp. 2–3).

To examine to what extent the experience of a stressful event affects identity, we conducted Latent Change Score (LCS) models in the "lavaan" R package (Rosseel, 2012) for both types of events, for each of the two identity domains, and for each of the three identity behaviors separately, resulting in a total of twelve combinations (see a general version of the LCS model in Fig. 1). As we were interested in change in identity relative to pre-event identity, we centered our data around the event for all adolescents with an event between the first and fifth wave of data collection ($n = 242$ and $n = 172$ for the relational and educational event, respectively). For each individual, we selected a pre-event measurement (i.e., T_1; the year before the event), and two post-event identity measurements (i.e., T_2 and T_3; the two years after the event). If multiple events of a kind had taken place, we used the first occurrence in the analyses. For adolescents who did not experience an event ($n = 440$ and $n = 668$ for the relational and educational event), we randomly selected waves so that the distribution of included waves would be the same for the groups with and without events.

As centering around the event meant that participant ages varied, we controlled the observed variables for age, along with sex and education, which have been found to be related to identity (e.g., Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2010). Before fitting the LCS models, we used independent sample *t*-tests to determine whether the groups differed on any of the study variables (i.e., age, sex, education, and identity) pre-event.

For each event × identity behavior combination, we tested the full model, which included the effect of the event and the moderating effect of neuroticism and support from parents and the best friend. We controlled for the direct effects of the moderating variables on identity change and for the effects of age, sex, and educational level on the observed identity variables. Fit of the model was evaluated using the Root Mean Squared Error of Approximation (RMSEA; Steiger, 1989) and the Comparative Fit Index (CFI; Bentler, 1990). An RMSEA of ≤ .08 and a CFI of ≥ .90 were considered to indicate acceptable model fit (Hooper, Coughlan, & Mullen, 2008). When fit of the model was not acceptable, we fitted a simpler model, including only the effect of the event and the control variables. As twelve models were tested, a more stringent alpha was used to determine significance of effects. Specifically, as we tested six models for each identity domain, we divided an alpha of .05 by six, resulting in an adjusted alpha of .008.

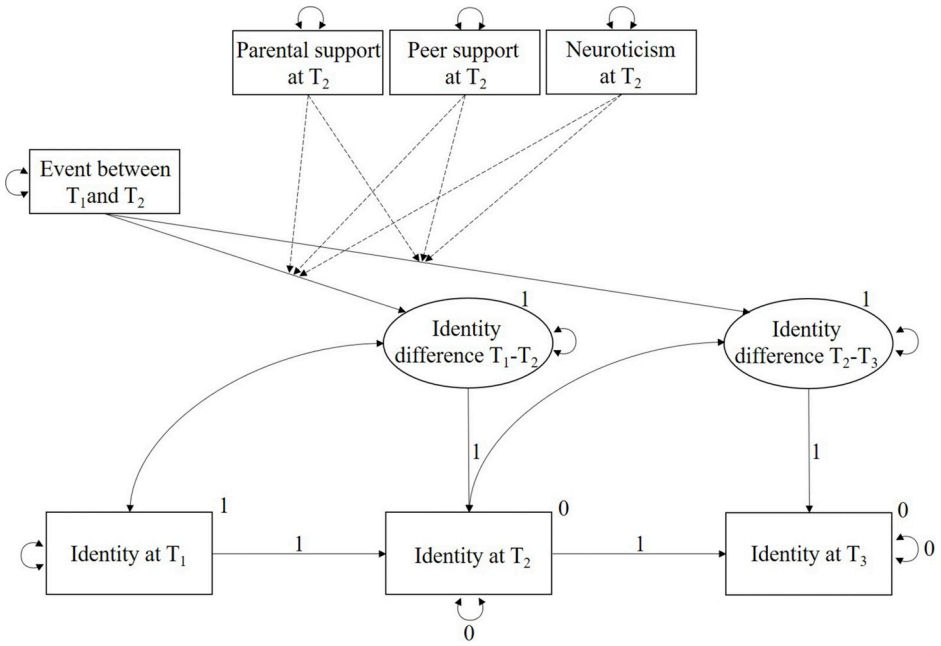

Fig. 1. Representation of the general latent change score model. All analyses were controlled for the direct effects of social support and neuroticism on the latent change variables, and for age, sex, and educational level on the observed identity variables. The solid lines represent direct effects, the dashed lines represent moderation effects.

3. Results

We calculated descriptive statistics for the study variables for the relational event sample (see Table 1) and the educational event sample (see Table 2). Zero-order correlations are presented in Tables S2 and S3 of the Supplementary Material for the relational and educational event sample, respectively.

Table 1
Descriptive statistics of the variables for the relational event sample (N = 682).

Variable	Mean (*SD*)/*N* (%)	Range	Comparison event vs. no event group at T_1	
Age at T_1	13.36 (1.02)	11–16	$t(678) = -2.54$	$p = .011$
Sex	374 (54.8%)		$t(680) = -1.01$	$p = .312$
Educational level at T_1			$t(673) = 0.11$	$p = .910$
Low	112 (16.6%)			
Middle	129 (19.2%)			
High	434 (64.3%)			
Deaths of family or friend [a]			–	–
Wave 2	74 (10.9%)			
Wave 3	58 (8.5%)			
Wave 4	76 (11.1%)			
Wave 5	77 (11.3%)			
Relational identity [b]				
Commitment	3.63 (.58)	1.93–5	$t(652) = -1.46$	$p = .144$
In-depth exploration	3.19 (.56)	1–5	$t(651) = -0.78$	$p = .439$
Reconsideration	1.71 (.66)	1–4.56	$t(650) = -2.11$	$p = .036$
Educational identity [b]				
Commitment	3.78 (.59)	1.27–5	$t(661) = -1.82$	$p = .070$
In-depth exploration	3.12 (.64)	1.20–5	$t(661) = -0.59$	$p = .555$
Reconsideration	1.97 (.68)	1–4.56	$t(661) = -1.93$	$p = .054$
Parental support at T_2	3.49 (.61)	1.25–4.83	–	–
Best friend support at T_2	3.28 (.71)	1–5	–	–
Neuroticism at T_2	3.45 (1.09)	1–7	–	–

Note. An alpha level of .008 was used to determine the significance of effects.

[a] Summing the individuals who had experienced deaths in each of the waves is not equal to the total number of individuals who had experienced deaths in our sample, as we only included first occurrences.

[b] Average across the selected waves.

Table 2
Descriptive statistics of the variables for the educational event sample (N = 840).

Variable	Mean (*SD*)/*N* (%)	Range	Comparison event vs. no event group at T_1	
Age at T_1	14.75 (.97)	11–17	$t(836) = 0.47$	$p = .636$
Sex (female)	415 (49.4%)		$t(272.82) = 3.86$	$p < .001$[a]
Educational level at T_1			$t(836) = 3.09$	$p = .002$[a]
Low	192 (22.9%)			
Middle	229 (27.3%)			
High	417 (49.7%)			
Repeating a grade [a]			–	–
Wave 2	5 (.6%)			
Wave 3	18 (2.1%)			
Wave 4	59 (7.0%)			
Wave 5	95 (11.3%)			
Relational identity [b]				
Commitment	3.66 (.61)	1.40–5	$t(821) = -0.93$	$p = .352$
In-depth exploration	3.18 (.60)	1–5	$t(821) = 0.16$	$p = .874$
Reconsideration	1.75 (.68)	1–4.67	$t(821) = -0.17$	$p = .867$
Educational identity [b]				
Commitment	3.81 (.61)	1.40–5	$t(832) = 3.59$	$p < .001$[a]
In-depth exploration	3.17 (.67)	1.20–5	$t(832) = -0.61$	$p = .546$
Reconsideration	2.02 (.76)	1–5	$t(235.64) = -4.42$	$p < .001$[a]
Parental support at T_2	3.41 (.64)	1.17–4.79	–	–
Best friend support at T_2	3.29 (.72)	1–5	–	–
Neuroticism at T_2	3.41 (1.07)	1–7	–	–

Note. An alpha level of .008 was used to determine the significance of effects.
[a] Summing the individuals who had experienced deaths in each of the waves is not equal to the total number of individuals who had experienced deaths in our sample, as we only included first occurrences.
[b] Average across the selected waves.

3.1. Equivalence of groups

T-tests did not reveal significant differences between adolescents who did and did not experience the *relational event* on the background variables or on any of the identity behaviors (see last column Table 1). For the *educational event*, repeating a grade occurred more often among males and among adolescents who were in a lower academic track. Moreover, adolescents who repeated a grade reported lower commitment and higher reconsideration (see last column Table 2).[1]

3.2. LCS models

Model fit statistics of each of the fitted models are reported in Table 3. Effect sizes and *p* values for the event and the moderators are reported in Table 4 (relational event) and in Table 5 (educational event). In addition, Table S4 of the Supplementary Material presents change statistics (means and variances) for the two intervals. Only significant effects of the control variables and the direct effects of the moderating variables are reported in text (see Tables S5 and S6 of the Supplementary Material for the full overview).

3.2.1. Relational event

The full model showed acceptable fit to the data for *relational commitment* and for *relational exploration*. For *relational reconsideration* the fit of the full model was unacceptable (RMSEA = .119, CFI = .817),[2] but the simple model showed acceptable fit. We found no evidence that experiencing a death predicted change in relational commitment, exploration, or reconsideration from T_1 to T_2 or from T_2 to T_3. Furthermore, there was no support for a moderating effect of parental support, best friend support, and neuroticism in the link of experiencing a death with change in commitment and exploration.

The full model also showed acceptable fit for *educational commitment*, for *educational exploration*, and for *educational reconsideration*. Experiencing the relational event did not significantly predict change in commitment, exploration, or reconsideration in the first or second interval. Moreover, parental support, best friend support, or neuroticism did not significantly moderate the effect of experiencing a death in either interval.

3.2.2. Control variables

In addition, sex was related to level of relational identity (see Table S5 for an overview). Specifically, girls reported higher

[1] We also tested the link between T_1 and the event using LCS models, which also revealed significant link between educational commitment and repeating a grade ($\beta = -0.13$, $p < .001$) and educational reconsideration and repeating a grade ($\beta = 0.17$, $p < .001$). Because of the complexity of our models, it was decided to leave this link out of the main analyses.
[2] In line with findings of other models, we found no significant effect of the event, nor of the moderators (see an overview of the effects of the unacceptably fitting models in Table S5).

Table 3
Model fit of the tested models.

	Relational event		Educational event	
	RMSEA	CFI	RMSEA	CFI
Relational identity				
Commitment	.068	.938	**.079**	**.971**
Exploration	.020	.993	.040	.977
Reconsideration	**.052**	**.983**	.063	.949
Educational identity				
Commitment	.072	.910	**.047**	**.987**
Exploration	.049	.961	.062	.923
Reconsideration	.071	.926	.076	.920

Note. In cases where the full model did not fit the data acceptably, the simple model was reported (cases bolded).

exploration and lower reconsideration at T_1, and lower commitment and exploration at T_2 than boys. A higher educational level was related to lower relational reconsideration at T_1. Adolescents of higher education also experienced lower levels of educational exploration and reconsideration at T_1 than peers of lower education. Moreover, the moderators had a direct effect on change in identity (see Table S4 and Table 4 for the change scores and the direct effects, respectively). Adolescents who reported higher best friend support reported relatively smaller decreases in relational commitment and exploration from T_1 to T_2 than adolescents with lower support, and smaller increases in commitment and exploration from T_2 to T_3. Moreover, higher neuroticism was related to a smaller decrease in relational exploration from T_1 to T_2. Finally, adolescents who reported higher parental support showed smaller decreases in educational exploration than those with lower parental support.

3.2.3. Educational event

The full model had unacceptable fit for *relational commitment* (RMSEA = .105, CFI = .848), but the simple model fitted acceptably. For *relational exploration* and *relational reconsideration*, the full model showed acceptable fit. Having to repeat a grade did not significantly predict change in identity from T_1 to T_2 and from T_2 to T_3. Moreover, parental support, best friend support, and neuroticism were not found to significantly moderate the link between the event and change in exploration and reconsideration in either interval.

The full model also fitted unacceptably for *educational commitment* (RMSEA = .085, CFI = .891),[3] but the simple model showed acceptable fit. For both *educational exploration* and *educational reconsideration*, the full model showed acceptable fit to the data. Repeating a grade was not significantly related to change from T_1 to T_2, or from T_2 to T_3. Moreover, we did not find support for a moderating effect of any of the moderators in either interval for educational exploration or reconsideration.

3.2.4. Control variables

As for the relational event sample, girls generally reported higher relational exploration than boys at T_1 (see Table S6 for an overview). Girls on average also had higher relational commitment and lower reconsideration at T_1, higher reconsideration at T_2, and again lower reconsideration at T_3. Compared to boys, girls also had lower educational reconsideration at T_1. Higher educational level was related to lower relational reconsideration at T_1. Educational level was also related to educational identity, with adolescents of a higher educational level reporting higher educational commitment at T_1, and lower at T_2, than adolescents of a lower educational level. Higher educational level was also linked to less educational reconsideration at T_1, and less educational exploration at T_1 and T_2. Adolescents who experienced higher levels of best friend support reported smaller decreases in relational exploration from T_1 to T_2 and larger decreases from T_2 to T_3 than adolescents who experienced lower support (see Table S4 and Table 5 for the change scores and direct effects, respectively). Best friend support was also related to smaller increases in relational reconsideration from T_1 to T_2, and smaller decreases from T_2 to T_3. Higher best friend support and parental support were related to a smaller increase in educational reconsideration in the first interval.

4. Discussion

Identity theory states that the experience of impactful events may increase the salience of identity, and may force individuals to reconsider their personal identity (Erikson, 1968). The present study examined whether experiencing the death of a family member or friend or having to repeat a grade was related to change in identity. Moreover, we investigated whether this link was stronger for adolescents with lower levels of parental and best friend support, and higher neuroticism. We found no evidence that experiencing a stressful event predicts change in identity in the year after the event, or in the subsequent year. Furthermore, neither neuroticism, nor support from parents and the best friend, was found to significantly impact the strength of this relation.

[3] In line with findings of other models, we found no significant effect of the event, nor of the moderators (see an overview of the effects of the unacceptably fitting models in Table S5).

Table 4
Effect sizes for event and moderators for the relational event sample.

	Relational identity					
	T_1-T_2			T_2-T_3		
	β	*SE*	*p*	*β*	*SE*	*p*
Commitment						
Event	0.02	0.43	.938	−0.17	0.55	.659
Parental support	0.01	0.07	.866	0.08	0.09	.276
Best friend support	0.34	0.06	< .001[a]	−0.24	0.08	.003[a]
Neuroticism	0.04	0.04	.362	−0.02	0.04	.784
Event × Parental support	0.04	0.11	.831	0.07	0.14	.829
Event × Best friend support	−0.03	0.09	.858	0.14	0.12	.605
Event × Neuroticism	0.01	0.06	.945	−0.03	0.07	.888
Exploration						
Event	0.31	0.45	.238	−0.23	0.58	.541
Parental support	0.02	0.07	.692	0.02	0.10	.769
Best friend support	0.28	0.07	< .001[a]	−0.24	0.09	.002[a]
Neuroticism	0.14	0.04	.001[a]	−0.03	0.05	.650
Event × Parental support	0.06	0.11	.783	−0.18	0.15	.597
Event × Best friend support	−0.31	0.10	.104	0.44	0.12	.100
Event × Neuroticism	−0.08	0.06	.539	−0.04	0.07	.805
Reconsideration						
Event	0.01	0.06	.711	−0.05	0.09	.221
Parental support	–	–	–	–	–	–
Best friend support	–	–	–	–	–	–
Neuroticism	–	–	–	–	–	–
Event × Parental support	–	–	–	–	–	–
Event × Best friend support	–	–	–	–	–	–
Event × Neuroticism	–	–	–	–	–	–
	Educational identity					
	T_1-T_2			T_2-T_3		
	β	*SE*	*p*	*β*	*SE*	*p*
Commitment						
Event	0.42	0.44	.139	−0.13	0.54	.722
Parental support	0.10	0.07	.062	0.06	0.09	.440
Best friend support	0.09	0.07	.154	−.016	0.08	.051
Neuroticism	−0.03	0.04	.504	−0.03	0.04	.600
Event × Parental support	−0.35	0.11	.162	−0.21	0.14	.542
Event × Best friend support	0.17	0.09	.413	0.19	0.11	.481
Event × Neuroticism	−0.24	0.06	.088	0.12	0.07	.493
Exploration						
Event	0.38	0.49	.166	0.20	0.61	.600
Parental support	0.15	0.08	.007*	−0.06	0.10	.469
Best friend support	0.05	0.07	.386	−0.02	0.09	.762
Neuroticism	0.09	0.04	.045	0.03	0.05	.683
Event × Parental support	−0.41	0.12	.098	−0.06	0.15	.858
Event × Best friend support	0.14	0.11	.492	0.01	0.13	.986
Event × Neuroticism	−0.08	0.07	.564	−0.12	0.08	.487
Reconsideration						
Event	0.11	0.54	.656	0.51	0.69	.167
Parental support	−0.08	0.09	.094	−0.04	0.11	.567
Best friend support	−0.12	0.08	.029	0.16	0.10	.050
Neuroticism	0.09	0.04	.033	0.04	0.05	.527
Event × Parental support	0.08	0.13	.727	−0.11	0.17	.753
Event × Best friend support	−0.11	0.12	.548	−0.23	0.15	.392
Event × Neuroticism	−0.07	0.07	.592	−0.23	0.09	.202

Note. *SE* represents the standard error of the unstandardized effect.
For relational reconsideration, we could not test for moderation as the full model showed inadequate fit to the data.
[a] An alpha level of .008 was used to determine the significance of effects.

4.1. Identity and stressful life events

Contrary to our expectation, we did not find evidence that the experience of a stressful event is related to change in identity (Tables 4 and 5). As such, our findings are partially consistent with an earlier study which revealed that stressful events were related to occupational, but not relational commitment, in adolescence (Van Doeselaar et al., 2018). However, our findings are inconsistent with studies on stressful events and identity in adulthood, which revealed decreases in commitment and increases in exploration and reconsideration within individuals following the occurrence of an event (e.g., Anthis, 2002). Furthermore, whereas previous research in adult samples suggested the links between life events and identity may be especially strong when the event matched the identity domain (e.g., Kroger, 1996), we also found no support for an effect when events matched the domain. A possible explanation for the difference in findings of this study compared to those conducted in adulthood is that stressful events affect adults differently than adolescents. Adolescents are still in the process of forming an identity (Erikson, 1950, 1968) and will be adjusting and readjusting their ideas of who they are regardless of whether or not they experience a stressful event. In the midst of many experiences that might impact their identity development, the experience of a stressful event may be of only limited impact. In contrast, adults are expected to have completed this developmental task, and thus will typically be involved in less identity adjustment. As a result, the impact of stressful events may be more noticeable in adults as compared to adolescents. More research examining adolescents and adults simultaneously is needed to test this possibility.

Furthermore, although we found no support for a relation between stressful life events and identity (Tables 4 and 5), both our *t*-tests (Tables 1 and 2) and LCS models (footnote 1) evidenced a link of low educational commitment and high educational reconsideration to the educational event. This is in line with work by Van Doeselaar et al. (2018), which found that occupational commitment was related to the experience of fewer events. This suggests that in the case of life events which may, in part, be triggered by the individual (e.g., repeating a grade), identity could be a predictor rather than a consequence. Of course, in the case of events that are independent of a person such as experiencing the death of a close other, this principle does not hold. Alternatively, this finding may indicate that changes in identity already happen earlier, in anticipation of the event.

4.2. Person and environment as moderators

Moreover, in contrast to earlier findings on life events and mental health (e.g., Yang et al., 2010), we did not find evidence that neuroticism exacerbated, or social support buffered against, the impact of stressful events (Tables 4 and 5). It should be noted, however, that three of our full models (i.e., that of relational reconsideration for the relational event sample, and those of relational and educational commitment for the educational event sample) did not fit adequately. This may have been due to a relatively small explanatory contribution of these factors, compared to the added complexity to the models. This explanation is in line with the findings from these full models. Although they should be interpreted with caution, the estimates from these models suggest there were no significant effects of the stressful events or of the moderators (see Table S5 for a complete overview of the estimates).

Despite finding no support for moderating effects of neuroticism and social support, both the large standard errors of the effects of stressful events on identity (Tables 4 and 5) and the significant variance in the change scores (Table S4) suggest that there are individual differences in this link. Whereas for some adolescents stressful events lead to a reconsideration of who they are, for others, they may serve as confirmation of their identity thus leading to a strengthening of their current commitments (Pasupathi, Mansour, & Brubaker, 2007). Still some others may not connect the event to the self, thus discouraging any change in identity (Merrill, Waters, & Fivush, 2015). In short, the manner in which individuals interpret and make meaning of an event may be important to understanding the effect on their identity (Skaggs & Barron, 2006). Future work should therefore also take into account the personal meaning that adolescents attach to events.

While this is a plausible explanation for the absence of an average effect of stressful events in our data, it is important to consider why adolescents are more or less likely to do “identity work” – or to do certain kinds of identity work (e.g., creation of a redemption sequence in which a bad event turns out positively; McAdams, 2013). In the present study, neither neuroticism, nor social support, could explain individual differences in the link between the event and the self. Previous work on narrative identity identified other person factors related to making self-event connections, such as advanced age and need for continuity (Pasupathi et al., 2007). But specific environmental factors should also be considered. For instance, school processes such as climate towards the importance of education may moderate the link between having to repeat a grade and educational identity. Future work needs to consider the role of both personal and environmental factors in understanding why and how adolescents connect events to their identity.

Interestingly, best friend and parental support, and to a lesser extent also neuroticism, directly predicted change in identity behavior in the relational and educational domain (Tables 4 and 5). While the link between best friend support and relational identity may show that if adolescents perceive high support from their best friend, they are less likely to reconsider this friendship, the link with educational identity suggests that the social environment can play a role in identity formation. That is, our findings have shown that experiencing high support from a friend and parent may predict how much adolescents identify with their education. This is in line with previous findings (Marcia, 1983; Meeus, Oosterwegel, & Vollebergh, 2002), and is particularly fascinating in light of our other findings, as it may suggest that adolescents’ social environment is more important than actual events taking place.

4.3. Strengths and limitations

The present study was the first to examine the links between specific stressful life events and identity in adolescence. A combined between- and within-person approach allowed us to examine between-person differences in within-person change following the

Table 5
Effect sizes for event and moderators for the educational event sample.

	Relational identity					
	T_1-T_2			T_2-T_3		
	β	*SE*	*p*	*β*	*SE*	*p*
Commitment						
Event	0.04	0.06	.247	< 0.01	0.09	.966
Parental support	–	–	–	–	–	–
Best friend support	–	–	–	–	–	–
Neuroticism	–	–	–	–	–	–
Event × Parental support	–	–	–	–	–	–
Event × Best friend support	–	–	–	–	–	–
Event × Neuroticism	–	–	–	–	–	–
Exploration						
Event	0.31	0.42	.124	0.29	0.64	.403
Parental support	0.01	0.05	.873	0.08	0.08	.239
Best friend support	0.22	0.05	< .001[a]	−0.19	0.07	.005[a]
Neuroticism	0.07	0.03	.038	−0.01	0.04	.850
Event × Parental support	−0.18	0.10	.268	−0.16	0.15	.551
Event × Best friend support	−0.09	0.09	.552	−0.04	0.13	.879
Event × Neuroticism	−0.02	0.06	.849	−0.10	0.09	.550
Reconsideration						
Event	−0.15	0.45	.392	0.74	0.80	.026
Parental support	−0.03	0.05	.351	−0.03	0.09	.680
Best friend support	−0.32	0.05	< .001[a]	0.25	0.09	< .001[a]
Neuroticism	0.05	0.03	.115	0.04	0.05	.501
Event × Parental support	0.04	0.11	.807	−0.37	0.19	.167
Event × Best friend support	0.02	0.10	.851	−0.34	0.24	.139
Event × Neuroticism	0.13	0.06	.112	−0.15	0.12	.351
	Educational identity					
	T_1-T_2			T_2-T_3		
	β	*SE*	*p*	*β*	*SE*	*p*
Commitment						
Event	−0.07	0.06	.017	0.10	0.09	.029
Parental support	–	–	–	–	–	–
Best friend support	–	–	–	–	–	–
Neuroticism	–	–	–	–	–	–
Event × Parental support	–	–	–	–	–	–
Event × Best friend support	–	–	–	–	–	–
Event × Neuroticism	–	–	–	–	–	–
Exploration						
Event	−0.27	0.43	.214	−0.11	0.61	.737
Parental support	0.06	0.05	.145	0.04	0.07	.543
Best friend support	0.01	0.05	.831	−0.07	0.07	.294
Neuroticism	0.06	0.03	.083	−0.08	0.04	.160
Event × Parental support	0.01	0.11	.950	0.36	0.15	.187
Event × Best friend support	0.10	0.09	.514	−0.29	0.13	.205
Event × Neuroticism	0.10	0.06	.304	0.14	0.09	.395
Reconsideration						
Event	0.09	0.50	.631	0.30	0.85	.380
Parental support	−0.14	0.06	< .001[a]	0.05	0.10	.417
Best friend support	−0.12	0.06	.001[a]	0.10	0.09	.143
Neuroticism	0.07	0.03	.036	−0.03	0.05	.620
Event × Parental support	−0.17	0.12	.277	−0.24	0.21	.387
Event × Best friend support	0.11	0.11	.448	−0.10	0.17	.678
Event × Neuroticism	0.05	0.07	.600	−0.04	0.12	.811

Note. *SE* represents the standard error of the unstandardized effect.
For relational and educational commitment, we could not test for moderation as the full model showed inadequate fit to the data.
[a] An alpha level of .008 was used to determine the significance of effects.

occurrence of a stressful event. However, our findings need to be interpreted in light of some limitations. First, as our study focused on specific stressful life events, our examination covered only a small selection of events that adolescents may experience. Therefore, if adolescents also experienced stressful life events in other domains, this might interfere with the effect of these specific events. Indeed, research on stressful events and psychopathology has shown that the accumulation of risk is especially important in understanding this link (Flouri & Kallis, 2007). A similar principle may hold for identity; more stressful events need to happen before adolescents start to reconsider who they are. However, as the number of adolescents that experienced more than one event per year was very low in our sample (3.8%), this possibility could not be tested. Second, our assessment of life events did not tap into the subjective experience of the event. That is, although we assumed losing a family member or friend and having to repeat a grade to be stressful, we cannot be certain that adolescents indeed experienced it as such. For future studies, we recommend including a measure of life events that also provides information on the subjective experience of the events.

5. Conclusion

The current study did not find evidence that experiencing the death of a family member or friend, or having to repeat a grade, predicts change in identity during adolescence. Furthermore, neuroticism and support from parents and the best friend were not found to moderate this link. However, social support had a direct effect on identity change, indicating that the social environment may sometimes be more important than actual events. Our findings suggest that adolescents do not necessarily reconsider who they are following the occurrence of a stressful experience. This suggests that there are interindividual differences in adolescents' tendency to make connections between an event and the self, and emphasizes the importance of identifying personal and environmental factors that are involved in distinguishing between adolescents who do and do not.

Declarations of interest

The collection of the data that was used for the present study was supported by grants to Wim Meeus and Susan Branje from the Netherlands Organisation for Scientific Research.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.adolescence.2019.08.006.

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