Year : 2020

Social and self continuity dynamics after intimate partner loss in later life

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UNIL | Université de Lausanne

FACULTÉ DES SCIENCES SOCIALES ET POLITIQUES

INSTITUT DE PSYCHOLOGIE

Social and self continuity dynamics after intimate partner loss in later life

THÈSE DE DOCTORAT

Présentée à la

Faculté des Sciences Sociales et Politiques
de l'Université de Lausanne

pour l'obtention de grade de

Docteure en Psychologie

par

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Lausanne

2020

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Faculté des sciences sociales et politiques

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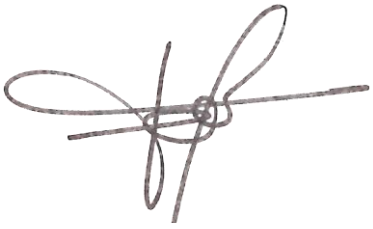

Marie SANTIAGO DELEFOSSE
Doyenne

Lausanne, le 25 mai 2020

Abstract & Résumé

Perceiving continuity, both with respect to self and social aspects, is an adaptive identity mechanism, which emerges in adolescence, develops in adulthood and is mostly needed in later life. Self-continuity is reinforced by reflecting upon one's life story and by incorporating life changes. Social-continuity, on the other hand, reflects the maintenance of social groups and roles, and has been found to be beneficial for well-being under health-related challenges. However, little is known regarding which critical life events may have a negative impact on self-continuity in later life and under which circumstances self-continuity can benefit well-being in adaptation to normative and non-normative life changes. Additionally, the concurrent influence of the two mechanisms on well-being has been greatly overlooked. Following a dynamic view on vulnerability, and drawing from the model of continuity of normal aging, this PhD work has three main aims addressed in the following studies: 1) To investigate with longitudinal quantitative data how self-continuity develops with age, whether its development differs depending on later life critical life events, such as divorce and bereavement, and which are its life course determinants; 2) to assess the role of self-continuity and social-continuity as coping mechanisms in the context of later-life social loneliness after divorce, with a specific focus on timing of adaptation; and 3) to examine the function of self-continuity as a coping mechanism for later life partner loss, by testing its role as mediator of the link between childhood adversity and well-being, accounting, at the same time, for social-continuity. In sum, findings of the 1st study show that individuals experienced stronger feelings of self-continuity as they aged, and that childhood adversity had a negative impact on later life self-continuity. Differences in self-continuity were observed between divorcees, bereaved and married individuals, with divorcees being more negatively impacted. In the 2nd study, results indicated that both types of continuity complemented each other and had a positive link to well-being outcomes depending also on the adaptation phase to loss. Finally, in the 3rd study, self-continuity was found to have a channeling effect between childhood adversity and later life well-being outcomes, with differential predictive patterns depending on the marital status. Future use of these findings should aim in designing interventions that address the negative impact of life course determinants on a fragile sense of continuity, and help individuals reinforce their perceptions of self- and social-continuity.

La perception de la continuité, en ce qui concerne le soi et les aspects sociaux, est un mécanisme d'identité adaptatif, qui émerge à l'adolescence, se développe à l'âge adulte et se révèle très important dans la vieillesse. La continuité du soi est renforcée en réfléchissant à l'histoire personnelle de la vie et en incorporant ses changements. La continuité sociale, d'autre part, est ancrée dans le maintien de groupes et de rôles sociaux, et s'est avérée bénéfique pour le bien-être et la santé. Cependant, on connaît peu l'impact des événements critiques de la vie sur la continuité du soi dans la seconde partie de la vie et dans quelles circonstances la continuité du soi peut bénéficier au bien-être lors de l'adaptation aux changements de vie normatifs et non normatifs, sans parler de l'influence concomitante des deux mécanismes au bien-être, qui a été largement ignorés. En suivant une perspective dynamique de la vulnérabilité et en s'inspirant du modèle de continuité du vieillissement normal, cette thèse a trois objectifs principaux: 1) Étudier comment se développe la continuité du soi avec l'âge (développement différé pour divorce/deuil; déterminants du parcours de vie); 2) évaluer le rôle de la continuité du soi et de la continuité sociale en tant que mécanismes d'adaptation après un divorce; et 3) examiner la fonction de la continuité du soi en tant que mécanisme d'adaptation à la perte du partenaire en âge avancé, en testant son rôle de médiateur sur le lien entre des expériences adverses durant l'enfance et le bien-être, tout en tenant compte de la continuité sociale. Ces résultats devraient permettre le développement d'interventions qui diminuent l'impact négatif des déterminants du parcours de vie sur le sentiment de continuité et aider les individus à renforcer leur perception de continuité du soi et de continuité sociale.

Για τον Παναγιώτη και τον Δημήτρη

Acknowledgements

The conception, development and completion of a doctoral dissertation is never an easy task. A lot of people in my professional or personal life have helped me through difficult and less difficult moments these past years and I feel the need to thank them one by one.

I have to acknowledge first and foremost my thesis director and co-director, Prof. Daniela Jopp and Prof. Dario Spini, for allowing me to become an independent researcher.

Daniela, you have always been a role model for me as a researcher. From the first day of our collaboration you have been a teacher, mentor and friend in many happy and difficult situations. Thank you for your ideas, for our discussions, opportunities and advice during these last years. Your broad knowledge and statistical expertise have helped every step of the way. You have shown me how to overcome difficulties, to never lose faith, how to be precise and look for improvement in every step of this adventure. Thank you for involving me in many of your projects and for giving me the chance to teach in your class. I learned a lot with teaching, and it was one of the most valuable lessons that you could have given me. Thank you also for inviting me to meet so many of your colleagues and connect with them. I will always remember the whale-watching in Santa Cruz and the walk in San Francisco. Thank you!

Dario, thank you, first of all, for giving me the opportunity to work with you in the context of NCCR-LIVES. It was a life-changing moment for me, and I will always be grateful for that! Your ideas and guidance are reflected in every chapter of this dissertation. Thank you for sharing with me your theoretical and practical knowledge, for setting the ground in the early days of this project and for your valuable resources which have deepen my understanding in our field of research. I will always remember the NBA game we watched together in Boston.

I would like to thank the members of my jury committee for accepting to read and comment on my work. Your contribution has helped me to significantly improve the quality of my manuscript.

I would also like to thank Davide Morselli for sharing with me his statistical expertise and for contributing in the publication of one of my chapters.

I have the best memories from my fruitful collaboration with Prof. Kyungmin Kim who guided me regarding the statistical analysis of multilevel models. Thank you! I would like to also thank Kathrine Börner for inviting me to spend two weeks in University of Massachusetts Boston and work with her team.

I would also like to thank the organizing team of the Doctoral Program LIVES for their organizational skills and their availability (Delphine Fagot, Tomaso Solari and Marie Baeriswyl). I feel lucky to have been part of this program.

I would like to thank the Managing team of NCCR-LIVES for all your support and care during these years: Tatiana Marcacci, Stéphane Guérard, Emmanuelle Marendaz Colle, Pascal Maeder, Urs Richle, Victorin Luisier, Grégoire Métral, Sabine Kradolfer, Catia Luperto, and of course the heart of the program Christelle Burri.

I would like to thank for the support the administrative team of the Institute of Psychology Karine Koch, Delphine Klein, Luisa Meglio-Vallat, Veronique Akono, Philippe Brechbühl.

A special thanks to my friend Marianna Schismenou for her support and advice when mostly needed!

There were moments where I was able to advance a lot my thesis and that was due to the writing retreats that were offered in the context of NCCR-LIVES by Dario Spini, Daniela Jopp and Matthias Kliegel. Thank you very much for organizing them!

I would also like to thank my colleagues and fellow students at the LIVES Free-Board for the fruitful discussions about the improvement of the doctoral program.

Apart from the people who scientifically contributed or supported me in the completion of this PhD, I would like to thank my colleagues, who became friends and who were there for me and made this period of life enjoyable. Adar, thank you for your friendship and support in one of my most demanding stages of my thesis. I will never forget it. Claudia, thank you for the collaboration all these years, for correcting my French and for sending out those envelops when I couldn't. I have the best of memories from our conference trips for GSA. I have to also thank the lab team members that I keep close to my heart for their help in numerous occasions, Cécile, Priscile, and Emmanuelle. Hannah, thank you for all the discussions about music and life we have shared and your heartwarming laughter! Anna, it is always great exchanging our moments of despair and happiness and I hope we will continue doing so! Thank you!

A very special thanks to Manon, my office mate, who made my days brighter and happier. A true friend!

I want to thank also my friend Vicky for her insights in art-therapy and our wonderful discussions regarding psychology and life in general, along with her husband Kostas.

Family has always been my anchor in life, and I could not have realized this dissertation without them. Mom and Dad, I cannot find words to thank you for all the things that you have given me and done for me, for the support in realizing my dreams and for simply being there for me in good and bad times. I owe to you who I am today. Thank you! My brothers, Nikolas, Konstantinos, and Stefanos, thank you for all the good times we had together growing up, for those that will come, and for making me feel at home wherever we might be on the planet!

To the two people that give meaning to my life and continuity, my husband Panagiotis and my son Dimitris: Thank you for being there for me at every step of the way, I couldn't have done this without you.

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List of Abbreviations

-2LL -2 Log Likelihood

AIC Akaike's information criterion

DF Degrees of Freedom

H1-6 Hypothesis 1-6

HPA Hypothalamic-Pituitary-Adrenal

ICC Intra-class Correlation Coefficient

MCCI Monte Carlo Confidence Intervals

MIGM Multiple Important Group Membership

SFOS Swiss Federal Office of Statistics

SWLS Subjective with Life Scale

1 Introduction

The more things change, the more they stay the same. This famous quote by the French novelist Jean-Baptiste Alphonse Karr (1848) captures the essence of this work that focuses on investigating how a person remains the same through time despite life changes that anyone may experience. Although the lexical connotations of continuity and change may contradict one another, they may, however, be complementing one another as psychological mechanisms by helping the person adapt to new life challenges. These two mechanisms can only be studied in parallel under circumstances when, both, the perceptions of change and continuity are required for an individual to maintain his/her psychological well-being and identity. As such, the loss of a long-term partner in later life (after the age of ≈ 45 years), either through divorce or death, can challenge the psychological well-being and the sense of identity that a person has. Being able to integrate changes into one's personal identity and maintaining, at the same time, their sense of continuity, addresses the mental challenges a person faces in this situation. It is still an open question to what extent individuals have a sense of continuity, and whether and how it becomes a protective coping mechanism in adaptation to critical life events. Through adaptation individuals succeed to regain their pre-event levels of well-being (Lucas, 2007). This dissertation was inspired by the continuity theory of normal aging by Atchley (1989) and aims at expanding the knowledge in the field by investigating the extent to which the sense of continuity may be beneficial, not only as an adaptive mechanism for age-related changes, but also for intimate partner losses in later life. So far, the empirical findings are limited regarding the degree to which continuity and change of identity inter-connect and affect well-being, as well as which are the determinants that shape a sense of continuity throughout the life course. Aiming at investigating these gaps in the literature, this work will first focus on answering the question of the life course determinants of continuity in later life. Then, we will address the question of timing: When is continuity most beneficial, by examining continuity perceptions, during the adaptation

process of a particular critical life event, namely divorce. Last, the role of continuity for later life well-being is examined in the context of partner loss, taking into account early life experiences, with a specific focus on childhood adversity.

1.1 Continuity and Change in Life

Continuity and change can both have a positive and a negative valence, depending on the particular life circumstances of a person. Staying healthy and autonomous in old age gives continuity a positive sense, while maintaining a harmful relationship with an abusive partner transforms the notion of continuity from positive to negative. Change is an unavoidable condition of our existence: The aging process is indivisible with change. However, some people find wisdom and fulfillment when reaching old age while others, who are challenged for instance by health issues, face despair and regret thinking that their life is coming to an end.

According to Breakwell (1993), continuity is one of the three identity principles, along with distinctiveness and self-esteem, that underlie the identity processes of assimilation/accommodation and evaluation: "These principles represent the fundamental codes which guide the processes. Basically, the principles specify the end-states which are desirable for identity." (p. 24). Breakwell (1993) does not give a strict definition of identity but she specifies that "identity joins terms such as character, the self-concept and personality, which are used to connote that unique syndrome of social, psychological and behavioral characteristics which differentiate one person from another" (p. 10). In order to reach the desirable identity end-states, these principles can become differently salient, based on the specific circumstances that the individual faces. In this dissertation we focus on the principle of continuity.

Through the process of assimilation and accommodation the individual is able to reach the end-state of continuity (Breakwell, 1993): Assimilation occurs, if life changes can

be easily integrated in the existing identity structure. This means that the new elements are not that different from the existing identity structure and therefore can become part of it, without challenging identity. Accommodation occurs, if the individual experiences changes that are too difficult to incorporate. That means that the existing identity structure needs to be adjusted, so that the new elements are integrated in order to become part of the identity. With the assimilation/accommodation process individuals either maintain or modify their identity structure until they reach the desired end-state, namely the perception of continuity of their identity.

Atchley (1989) in his theory of continuity of normal aging gave a more specific definition of continuity and of the life period in which it is mostly needed:

> On the one hand, to exhibit continuity can mean to remain the same, to be uniform, homogeneous, unchanging, even humdrum. This static view of continuity is not very applicable to human aging. On the other hand, a dynamic view of continuity starts with the idea of a basic structure which persists over time, but it allows for a variety of changes to occur within the context provided by the basic structure (Atchley, 1989, p. 183).

His dynamic view of continuity allows for several changes to occur, however, only within a coherent and persistent identity structure that remains the same through time. He also specified that experiencing continuity is helpful for individuals as an adaptive mechanism when they face age-normative changes.

> A central premise of continuity theory is that, in making adaptive choices, middle-aged and older adults attempt to preserve and maintain existing internal and external

> structures and that they prefer to accomplish this objective by using continuity (i.e., applying familiar strategies in familiar arenas of life; Atchley, 1989, p. 183).

At the same time, he questioned the efficacy of this adaptive mechanism in pathological aging or in non-normative changes by defining normative aging:

> Normally aging people are independent adults with persistent self-concepts and identities. They can successfully meet their needs for income, housing, health care, nutrition, clothing, transportation, and recreation. They lead active, satisfying, and purposeful lives that involve adequate networks of long-standing social relationships (Atchley, 1989, p. 184).

However, little is known about the extent to which continuity may be beneficial for adapting to other changes that are not associated with the aging process, such as divorce, as studies have rarely addressed this question empirically. Non-aging-related changes are likely to present a greater disturbance for a person's life and can therefore have a greater impact on well-being than age-normative ones, as the latter are more expected to occur to a person in later life. As life expectancy has increased in the past century and is now estimated to be over than 80 years in many countries (DESA, U., 2019), in this work the term later life refers to the second half of life, namely over the age of approximately 40 to 45 years old. The investigation of non-age-related changes and events with regards to continuity in later life may help in understanding why theorists for over a century have identified this mechanism as one of the main components of a robust identity.

Continuity can be distinguished into internal- or, otherwise called, self-continuity and external- or so-called social-continuity (Atchley, 1989). Self-continuity is an overarching identity mechanism that incorporates the various changes in life, creating a meaningful and

cohesive entity, and can contribute to a stronger perception of unique- and self-ness (Figure 1.1). On the other hand, social-continuity refers to an external system of relationships, activities and environmental contexts that also persist through life (Atchley, 1989).

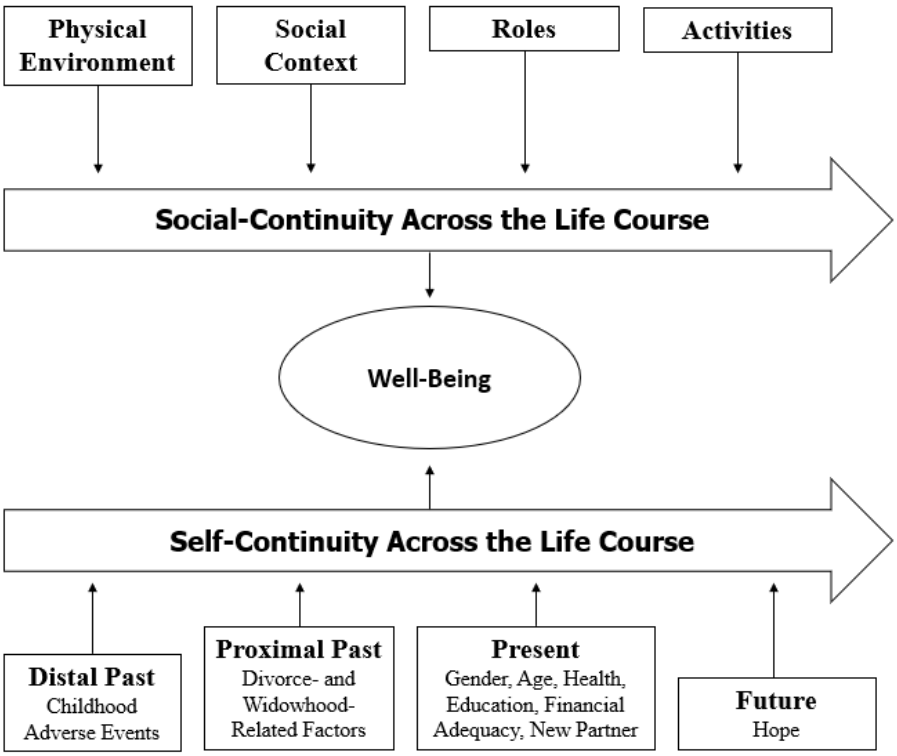

Figure 1.1 Life course model of self-continuity and social-continuity

1.1.1 Self-Continuity

William James (1952) was the first to talk about how continuity and change co-exist and form our personal identity, suggesting that the unity of our past and present selves is experienced through a sense of warmth and intimacy in our feelings that is unique and specific for each individual.

> A uniform feeling of "warmth", of bodily existence (or an equally uniform feeling or pure psychic energy) pervades the all (the present and past selves); and this is what gives them a generic unit, and makes them the same in kind. But this generic unity

> coexists with generic differences just as real as the unity. And if from the point of view they are one self, from others they are as truly not one but many selves. And similarly of the attribute of continuity; it gives its own kind of unity to the self – that of mere connectedness, or unbrokenness, a perfectly definite phenomenal thing – but it gives not a jot or tittle more. […] And accordingly we find that, where the resemblance and the continuity are no longer felt, the sense of personal identity goes too (James, 1955, p. 216).

Erikson (1968) in his theory of psychosocial development suggests that as individuals grow older and develop, they enter and exit eight stages of development. In each stage the person is confronted with a crisis that they need to overcome. The crisis consists of a struggle between the biological tendencies and the sociocultural influences that the individual needs to eventually reconcile in order to grow and pass to the next developmental stage. By reconciling these two forces in each stage they gain a life-long virtue: E.g., in the first developmental stage the baby needs to reconcile trust and mistrust and if trust prevails then the virtue of hope will become part of this young person's characteristics. Erikson (1968), who was the first to integrate the concept of self-continuity in his theory about development, suggests that in adolescence (5^{th} developmental stage) the individual seeks to define who she/he is though the resolution of the crisis identity vs role confusion. With the resolution of the crisis, self-continuity emerges as part of the identity with the understanding that what makes us unique compared to others is our personal life story and how we envision ourselves in the future. A failure in defining self-continuity leads to role confusion (Erikson, 1968). The ability to remember major life events that affected us and defined who we are in the present and who we may be in the future is a key element of self-continuity (McAdams, 2011). For McAdams (1990), self-continuity is a synonym for personal identity, which is only achieved

through the narratives of one's life story: A person's identity is defined by his/her autobiographical story.

However, there are life transitions that seem difficult to accept and, therefore, not easy to incorporate into our life-story, and may, consequently, impede our ability to experience self-continuity. According to Cohler (1982), it is not the actual events that create our personal life story, but rather our interpretation of them. Habermas and Köber (2015) indicated that in order to sustain self-continuity autobiographical reasoning is needed:

> Autobiographical arguments are used in autobiographical reasoning, which is a process of thinking or speaking that links distant elements of one's life to each other and to the self in an attempt to relate the present self to one's personal past and future (p. 666).

According to their findings, autobiographical reasoning is particularly important when a critical event is recent (less than 4 years) as it is not enough to only remember an event. It is rather the active processing of the respective memories as part of one's life story. The capacity to recall autobiographical memories is crucial for the self, as lack of it is related to mental health issues such as Alzheimer's disease or memory loss (Rubin, 1999). Rubin and Umanath (2015) specify also the term "event memory" as the mental representation of a scene from the past that positions the "self" in a specific location and time. Research, however, is limited regarding which specific events across the life course can cause a disruption in autobiographical memories and have a negative impact on our perception of self-continuity. Psychotherapists may be able to better address mental health issues related to specific critical events if they know the extent to which self-continuity is challenged in the particular circumstances.

Another major topic in the investigation of self-continuity has been its development and utility in advancing age. According to continuity theory (Atchley, 1989), self-continuity is mostly needed in later life when individuals have to face age-related decline and health limitations. These challenges pose a threat to identity and well-being, as individuals try to find similarities to their past self and envision how they will remain the same person in the future. Erikson (1968) suggested that in the final developmental stage (ego integrity vs despair) a person with a strong sense of self-continuity will enjoy the fulfillment of his/her life achievements. Regret, on the other hand, is accompanied by a sense of discontinuity, as individuals realize that their one and only life is coming to an end without, however, being complete and satisfying.

Several researchers have questioned who needs or exhibits more self-continuity across the life course and when (Bluck & Alea, 2008; Breakwell, 1988; Habermas & Köber, 2015; Löckenhoff & Rutt, 2017). However, the largest part of research on self-continuity has focused on qualitative findings, and only a few of the studies have tried to investigate this identity mechanism with quantitative data (Hershfield, 2011; Rutt & Löckenhoff, 2016a; Sedikides, et al., 2016). For instance, Rutt and Löckenhoff tested with an adult life span sample of 91 individuals the similarity to past and future selves (6 time points in each direction) by using an explicit self-report measure of continuity and an implicit task where traits were rated. They found age differences in their sample, with old age being associated with higher self-continuity. The same authors (Löckenhoff & Rutt, 2017) summarized recent experimental studies (Hershfield, 2011; Rutt & Löckenhoff, 2016a; Sedikides, et al., 2016) that investigated how self-continuity develops with age and concluded that the older the individuals were the more self-continuity they experienced. In addition to these findings, Bluck and Alea (2008) investigated how individuals in different life stages may enhance self-continuity and found that in early adulthood compared to later life, individuals used more autobiographical memory which in turn lead to a stronger sense of self-continuity. These

findings indicate that self-continuity tends to become more concrete in later life, as individuals tend to rely less on specific memories from past events. However, findings so far are mainly based on relatively small sample sizes, experimental procedures and cross-sectional data, pointing out the need to investigate this identity mechanism with longitudinal data in order to explain how self-continuity develops with advancing age and which are the factors that affect its development. Addressing those research gaps may help in confirming Erikson's theory about self-continuity and its usefulness in later life and, at the same time, in motivating mental health professionals to focus on reinforcing self-continuity in later life.

Self-continuity has also been investigated with regard to temporality, distinguishing it in past and future self-continuity (Habermas & Köber, 2015; Hershfield, 2011; Rutt & Löckenhoff, 2016a; Sedikides, et al., 2016). Past continuity refers to the notion of how similar we feel compared to our past self, and future continuity to how different from our future self we believe we are. A temporal comparison with our past self may be easier to grasp, as memory holds account of past events, emotions and circumstances. Instead, future self-continuity relies on expectations as much as attitudes towards life such as positive or pessimistic life outlook (Brandtstädter & Greve, 1994). In their work Markus and Nurius (1986) did not address future self-continuity per se, but rather the concept of "possible selves", which refers to the fact that individuals can project themselves in the future, by addressing how much they thought they resembled to a hoped-for rather a feared image of their future self. They suggest that possible future selves may motivate future behavior and also inform about how individuals perceive themselves in the present. However, only very few studies were able to assess past and future self-continuity (or attitudes towards life) at the same time (Rutt & Löckenhoff, 2016b; Peetz & Wilson, 2008), leaving open the question regarding how these two facets of self-continuity relate.

In addition to this temporal distinction in past and future continuity perceptions, specific time frames have also concerned research: Self-continuity with respect to 6 months

ago, two years ago, 10 years ago, or with respect to one or two years ahead? Defining the time interval of reference is usually dependent to the investigated context of each study. For example, patients who had a stroke that limited their mobility, might be asked whether they feel they are the same person as before the health incident. Findings, however, may differ if the assessment addresses changes experienced right after the stroke, or after a certain amount of time has already passed, allowing for more adaptation to the new situation. In the same way, there are also patients who were warned in the past about the possibility of having a stroke, leading them to make life changes before the stroke. For these individuals, the stroke was probably less of an actual turning point or critical life event that changed their life. Therefore, putting specific time frames when asking about similarity with past and future selves may be misleading and more research is needed to understand how to better capture individual perceptions of self-continuity.

1.1.2 Social-Continuity

Atchley (1989) differentiated self-continuity from social-continuity, or in other words, described as external-continuity.

> External continuity is defined in terms of a remembered structure of physical and social environments, role relationships, and activities. Perceptions of external continuity result from being and doing in familiar environments, practicing familiar skills, and interacting with familiar people (Atchley, 1989, p. 185).

Apart from specific social partners (i.e., family, friends, acquaintances), who may offer companionship, support and connectedness, social groups share the same interests, goals or values that persist over time within a system of individuals, reflecting social-continuity.

Individuals share cultural, historical, and location-specific characteristics that reinforce their social identity. The theory of social identity by Tajfel and Turner (1979) defines how self-perception is shaped by participating in social groups. According to their theory, in order for a system of individuals to form a group they have to go through three stages: 1) social categorization which refers to seeing oneself as member of a particular group (e.g., sports group, gender), shaping social identity; 2) social identification which allows a distinction between people that share the same social identity (ingroup) or not (outgroup) based on similarities in values, behavior etc.; 3) and social comparison which can lead to prejudice and discrimination about the people that don't belong to the same group, as they are viewed as inferiors to the ingroup members. Extending their work, the social cure theory suggests that reporting only the participation in a social group does not capture the importance that individuals ascribe to a particular group membership (Jetten, Haslam & Haslam, 2012). Highly valued social group memberships can enhance social-continuity and identity, and improve well-being (e.g., psychological, Haslam et al. 2008). They also define the term "group" as a system of 2 or more individuals, therefore, a romantic couple is considered as a group with only two social partners. Continuous engagement in important social groups provides individuals with specific self-facets and roles that, if lost, challenge well-being (Jetten et al., 2012). Particularly in later life when losses in social relations are more common, an unpredictable environment emerges when support, that was once guaranteed through social relationships, is no longer available. In addition, Haslam and colleagues (2008) suggest that an increase in social groups' participation can be very beneficial during adaptation to new life circumstances. However, it remains a question whether increased social participation or social-continuity is beneficial for well-being, whether there are differences depending on the critical life event experienced, and whether the impact varies across the phase of adaptation to a particular event. Commitment to valued groups may add stress to individuals overcoming a critical life event, as they may not be able

to fulfill their role as group members, even though they receive the group's support, creating ambivalent relationships.

Social-continuity is needed because individuals define who they are in relation to others, and when they experience the loss of important social partners, they ultimately lose the social affirmation about themselves (Atchley, 1989). Continuous social participation, which gives meaning and purpose to our existence, has been identified as one of the key components of the successful aging theory by Rowe and Kahn (1997), and as a psychological resource in times of distress, such as when losing one's intimate partner in later life (Utz, Carr, Nesse, & Wortman, 2002). However, social-continuity has not yet been investigated in parallel to self-continuity and under the prism of critical life events across the life course, indicating a gap in the literature that this work will try to fill. As critical life events may have a greater or less severe negative impact on psychological well-being depending on the specific period of the life course, it is important to identify the extent to which self- and social-continuity can act as coping mechanisms in challenging situations, such as partner loss in later life.

1.2 Vulnerability, Critical Life Events and Resources Across the Life Course

Following the theoretical framework of Spini et al. (2017; see also Hanappi, Bernardi, & Spini, 2014), vulnerability across the life course is not a state that individuals enter or exit, but rather a dynamic process that is affected by the lack of resources in at least one life domain, on the one hand, and the exposure of the individual to stress (e.g., stress-related negative outcomes), on the other hand. The authors differentiate vulnerability in two categories: *latent* vulnerability, which refers to an extended period of adversity or fragilization during the life course (e.g., poverty in childhood) and results in non-accumulation of resources, and/or the accumulation of loss, and to higher risk of experiencing stress. Latent vulnerability often precedes manifest vulnerability, which is related to the

occurrence of critical life events and negative social status change (e.g., divorce, widowhood, job-loss). This distinction indicates the need to consider distal and proximal critical life events as triggers of vulnerability across the life course. Martin and Martin (2002) addressed the issue of distal vs proximal influences and how they related to developmental changes across the life course. The main focus of this study was to test whether childhood adversity and paternal care along with current availability of resources in adult life were able to support the adaptation to life changes with regard to health and well-being. It is, therefore, of interest to investigate whether resources (e.g., a new romantic partner) and identity coping mechanisms (i.e., self- and social-continuity) can buffer the negative effects of distal and proximal stressors on well-being in later life.

1.2.1 Childhood Adverse Events

Childhood adversity refers to difficult life circumstances and critical life events occurring from early childhood through adolescence, leading to mental health inequalities across the life course. However, not everyone with a history of childhood adverse events develops mental health issues (Werner, 1989). Therefore, the investigation inter-individual differences in these events is important in order to understand how they are linked to continuity and to later life well-being. Factual and emotional neglect, sexual harassment and domestic violence, are only a few of the negative experiences that a child or adolescent can encounter in early developmental stages and that can have long-lasting consequences for physical and psychological well-being (Chapman, Dube, & Anda, 2007; Turner & Lloyd,1995). Other types of adversity that have been found to affect later life outcomes include poverty, parental substance abuse or loss of parent due to divorce or death. For instance, individuals whose parents were divorced had higher chances of getting themselves separated and they tended to have worse relationship quality (only women) than their counterparts whose parents did not separate in childhood (Mustonen, Huure, Kiviruusu,

Haukkala, & Aro, 2011). In addition to the negative impact of these events, children who had family members incarcerated or diagnosed with a serious mental health issue often had to face stigma and discrimination growing up (Corrigan & Miller, 2004; Phillips & Gates, 2011).

Traumatic events in childhood have been investigated for their impact on physical and mental health. Neuro-psychological studies have revealed that the structural development of the brain changes as a response to such adverse events (Lupien, McEwen, Gunnar, & Heim, 2009). In addition, the extent to which individuals are able to adequately react to stressors is regulated by the Hypothalamic-Pituitary-Adrenal (HPA) axis, which can also be altered by early life trauma and adversity, leading to higher stress reactivity and reduced cognitive functioning (Cicchetti & Rogosch, 2009; Hanson et al., 2015). Apart from the physiological responses to childhood adversity, it has been found that childhood adverse events influence social outcomes in adult life, with, for instance, higher risk for divorce and marital unsatisfaction (Whisman, 2006). Individuals having experienced childhood adversity are at higher risk of being violent towards their partner when they experience additional stressors in adulthood (Roberts, McLaughlin, Conron, & Koenen, 2011). Dysfunctional styles of attachment have been found to mediate also the link between childhood adversity and depression in adulthood (Bifulco et al., 2006).

Klein and Janoff-Bulman (1996) investigated narratives of child abuse survivors and compared them with a non-victimized control group. They focused their research in two axes: 1) narratives with respect to past vs present and future, and 2) narratives about the self vs others. Traumatized individuals differed from the control group as they tended to narrate stories that focused more on the past and on others. Specifically, not talking about oneself was related to worst coping strategies among survivors of childhood trauma. This emphasis on others and not to self in narratives about one's life story was only evident in this traumatized group even when they compared them with another control group of individuals

who had experienced a difficult parental divorce in the past. These findings indicate that childhood adversity and trauma are closely related to how individuals view themselves in relation to others and to the extent to which they are able to develop coping strategies. As self-continuity is reinforced through the narration of our life story, the influence of a traumatic childhood may be particularly important. Furthermore, other researchers found that adult identity was negatively influenced by childhood adversity, with long-lasting harmful effects for well-being (Boysen & VanBergen, 2013; Grotevant, Lo, Fiorenzo, & Dunbar, 2017). Specifically, Boysen and VanBergen (2013) reviewed literature on dissociative identity disorder in adults and they reported childhood adversity and trauma as one of the main antecedents for the emergence of this type of psychopathology. Nevertheless, the effects of childhood adversity on later life self-continuity have not yet been investigated, indicating a research gap regarding how this identity mechanism develops under such circumstances, and the extent to which childhood adversity affects later-life well-being when accounting for the levels of self-continuity.

1.2.2 Intimate Partner Loss in the Second Half of Life

Divorce in later life is a recent phenomenon associated with economic, social and psychological implications (Brown & Lin, 2012; Dykstra & de Jong-Gierveld, 2004, Perrig-Chiello, Hutchison, & Morselli, 2015). Between 1990 and 2010 the rate of divorce in older adults has doubled and more than 1 out of 4 divorcees is 50 years old or older in the USA (Brown & Lin, 2012). In Switzerland, the number of divorcees after long-term marriages has doubled in a period of 20 years, for those aged 50 to 59, while it has tripled for those who were 60 and older (SFOS, 2017). This development indicates that divorce in later life has become a critical life event that can no longer be consider as an off-time transition. Bereavement is another type of critical life event related to spousal loss. In contrast to the significant increase in divorces in the second half of life internationally and in Switzerland,

the number of widows and widowers followed a proportional to the population increase. The bereaved individuals in Switzerland in 2018 represented 4.7% of the total population (SFSO, 2018).

While being a difficult time at all ages, loss of partner later in life can come with particular and/or additional risks for social, physical and mental health (Dykstra & de Jong Gierveld, 2004; Pudrovska & Carr, 2008). Specifically, health issues that are related to age (e.g., menopause, cardiovascular problems), changes in professional life (e.g., retirement), family needs associated to care provision (e.g., advanced aged parents or grandchildren), are only a few of the challenges that may cause distress in addition to partner loss in later life.

According to continuity theory (Atchley, 1989), older aged individuals have routines, beliefs and behaviors that follow them throughout the life course, and, therefore, are difficult to change during adaptation to partner loss. Both divorcees and widowed individuals have to realize that the identity as a spouse is lost and to accept a new one, that of the divorcee or the bereaved, respectively, in order to overcome the loss-associated distress. Distress is related to the early stages of loss (Booth & Amato, 1991; Lucas, Clark, Georgellis, & Diener, 2003; Pudrovska & Carr, 2008), while adaptation comes later in time. Amato (2000) in his divorce-stress-adjustment theory describes "marital dissolution not as a discrete event but as a process that begins while the couple lives together and ends long after the legal divorce is concluded" (p.1271). With divorce the person experiences several stressful events that negatively influence the functioning of parents and children and can result in poor emotional and behavioral reactions. When the person overcomes these difficulties and experiences reduced divorce-related symptoms, then adjustment takes place. In this last phase the individual is again able to function in a positive way in several life domains (e.g., new family, work). Lucas (2005), with a similar perspective, examined divorcees and married individuals with regard to life satisfaction over a period of 18 years (pre- and post-divorce levels). He found that, indeed, after some time had passed, divorcees tended to recover their pre-divorce levels

of satisfaction with life, however, without completely reaching their initial level. He also observed that divorcees had lower levels of life satisfaction compared to the married, not only a while before their divorce, but also even before they got married. These findings indicate that while adaptation to loss is a matter of timing, and that there are factors that may help in adapting better or faster, there are preceding-to-divorce factors that can cause or maintain differences in life satisfaction and in overall well-being after the loss. Widow(er)s, similarly to the divorcees, do not reach their pre-widowhood levels of life satisfaction, indicating that there are individual differences in adaptation to loss that may be important to investigate with regard to self- and social continuity.

In adaptation to widowhood or divorce, individuals are also confronted with changes in their social environment: Divorcees experience a reduction in their social network after divorce (Widmer, Aeby, & De Carlo, 2012), as friends, for instance, may choose to support their ex-spouse. Widow(er)s are likely to increase their level of social engagement in order to compensate for their lost identity and maintain continuity (Utz et al., 2002), and, despite their need for social embeddedness, they experience both losses and gains in social partners due to bereavement (Ha, 2008). However, both divorcees and widow(er)s may also feel to no longer belong to certain social groups (e.g., married couples), in which they were active members together with the ex- or deceased partner. During the initial post-loss time, divorcees often experience social isolation and loneliness due to changes in social embeddedness along with the loss of the significant other (de Jong-Gierveld, van Tilburg, & Dykstra, 2006). Widow(er)s, on the other hand, even though they receive more support during the initial time after the loss from family and friends, they also feel left alone and have a high risk for depressive symptoms (Golden et al., 2009).

According to Bowlby (2005), who developed the theory of attachment, loneliness is the outcome of an insecure attachment in early life stages between the mother and the infant. He also argues that insecure attachment between the mother and the child in early life can

shape the development of personality traits (e.g., greater neuroticism). Therefore, adverse childhood experiences (e.g., emotional neglect) may relate to less favorable personality traits and have a distal link to loneliness. Based on the theory of mother-child attachment, Weiss's theory (1973) distinguishes loneliness in social or emotional: Social loneliness is linked to an unengaging social environment and to a lack of friends or family, who may act as sources of social support, providing the individual with a sense of connectedness. It is also related to feeling excluded, bored and without purpose. Emotional loneliness, instead, is associated with the absence of a significant other, such as a spouse or life partner, and is closely related to anxiety, lack of a sense of security, and aloneness. In both social and emotional loneliness individuals are not able to satisfy their needs for socialization and intimacy, and, as Perlman and Peplau (1981) described it, loneliness occurs "when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively" (p.31). Thus, loneliness is the perception of being alone and is different from social isolation which is objectively having a small social network. Nevertheless, by being socially isolated a person has a higher risk of feeling lonely. Social isolation and loneliness have become recognized as a new lethal health concern in western countries, as they account for 29% and 26% respectively of premature mortality (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). Apart from premature mortality, loneliness in the second half of life has major consequences for mental and physical health, as it has been associated with depression, reduced cognitive functioning, sleep disturbance and cardiovascular problems among others (Graneheim & Lundman, 2010; Luo, Hawkley, Waite, & Cacioppo, 2012; Shiovitz-Ezra & Ayalon, 2010). Divorce as a risk factor for loneliness (e.g., 44% of the divorcees report feeling lonely; Nikolaisen & Thorsen, 2014) can have quite devastating consequences in later life: Divorcees over the age of 50 have been found to be lonelier than their married counterparts, regardless of remarrying or not (van Tilburg, Aartsen, & van der Pas, 2014). Golden and colleagues (2009) found that 11% of the bereaved over the age of 65 felt lonely

and 17% of those feeling lonely were also depressed. Even though only very old individuals (80 and over) seem to experience higher levels of loneliness compared to younger aged groups (Dykstra, 2009), the consequences of loneliness vary across ages (e.g., higher risk of dementia for older ages; Hawkley & Cacioppo, 2007; Wilson et al., 2007). However, research is limited regarding how identity mechanisms may help in overcoming social and emotional loneliness in later life divorce and bereavement, depending on the adaptation phase, and how both types of loneliness develop with age in comparison to the married individuals, when taking into account these two identity mechanisms.

1.2.3 Resources

During adaptation to loss, individuals tend to use different psychological mechanisms or resources (e.g., social) in order to maintain their well-being (Boerner & Jopp, 2009) and adaptation to critical life events can be more thoroughly investigated when resources and coping mechanisms are studied together (Jopp & Schmitt, 2006). However, the perception of continuity (self and social) as a psychological resource in the context of partner loss has received little attention. During such transitions, individuals may feel that their self-integrity is affected and that there is no coherence in their pre- and post-divorce self, resulting in feelings of discontinuity. Dealing with such identity disruptions may be more difficult in older compared to younger ages, as losing the identity as a husband or wife after a long-term marriage may be more challenging, leading to vulnerabilization in later life. However, it is still an open question the extent to which this identity disruption is an unwelcome change: For instance, exiting an unwanted marriage may indeed cause discontinuity with the role of the spouse, which in this particular situation is desired. However, the person may with time desire again continuity with a long-forgotten identity (e.g., being single). Therefore, individuals overcoming critical life events may experience at the same time continuity and discontinuity with past identities. To our knowledge, self- and social-continuity have not been

yet examined individually or concurrently as psychological resources during adaptation to divorce and widowhood in later life. Lastly, little is known regarding the extent to which the individuals that achieve, through adaptive choices, to maintain self-continuity and social-continuity are more likely to feel less lonely and more satisfied with their lives compared to those who experience discontinuity.

Apart from psychological resources, such as self- and social-continuity, other types of resources may help the individual adapt better or faster to partner loss. Hobfoll's (Hobfoll, Freedy, Lane, & Geller, 1990) theory on conservation of resources, suggests that having a variety of valuable resources (e.g., coping strategies) protects individuals when they face the loss of another type of resource (e.g., partner loss). Work from Amato (2000) indicates the beneficial effects of social resources at any given time during divorce: Having more social partners leads to better support in times of need, while support can be factual or emotional. In addition, it is well documented that support from social partners, and especially friends, is beneficial for alleviating loneliness caused by widowhood, however, it has also been found that social support is only one of the ways to ameliorate well-being (Utz, Swenson, Caserta, Lund, & DeVries, 2014). For instance, being able to re-partner after divorce and maintain this relationship can be protective against feelings of social isolation and emotional loneliness, as the identity of "being a spouse" is regained. Re-partnering, and especially re-marrying after divorce is more common among men than women and is associated with less emotional loneliness for men and less social loneliness for women, indicating gender differences (Dykstra & de Jong-Gierveld, 2004). These findings show that, through a new relationship, the individual may satisfy the need of belonging and the need to socialize. However, it is often the case that individuals may prefer to live a more solitary lifestyle, without engaging in social groups or without having a partner. Therefore, it is not the actual lack of resources that causes loneliness, but rather the unmet needs for social embeddedness and romantic relationship, leading to perceived social and emotional loneliness, respectively. These

interindividual differences in adaptation to loss can be attributed to other factors such as personality (Pudrovska & Carr, 2008). Previous work on personality by Caspi and Moffit (1993) suggests that in new or destabilizing conditions individuals tend to react according to their well-established behavioral tendencies (personality traits), which act as resources in early adaptation phases. As loss of one's partner also comes with loss of roles that are crucial to identity, as outlined above, considering identity mechanisms may be important. However, little is known regarding the extent to which identity mechanisms may facilitate adaptation to divorce in different post-divorce phases, and if the effects of personality traits and social resources remain the same when also considering the influence of self- and social-continuity.

1.3 The LIVES Intimate Partner Loss Study

The LIVES Intimate Partner Loss Study[1] (Hutchison et al., 2013; Perrig-Chiello et al., 2015) was based on the crisis and chronic stress model of adaptation to critical life events by Amato (2000). Conducted in Switzerland between 2012 and 2017, the major aims of this longitudinal study were the investigation of personal growth, the persistence of chronic disadvantage and stress, and the diversities in adaptation to partner loss, through divorce or bereavement in later life. Participants were mainly recruited through the Swiss Federal Office of Statistics and a minority through direct advertisements. The critical life events of separation, divorce and bereavement were investigated with a representative sample of middle- and old-aged individuals from the German- and French-speaking parts of Switzerland in three waves of data collection (longitudinally; 2 years apart; 2012, 2014, 2016). In addition, the study recruited a sample of continuously married individuals (for more than 15 years) as control group. The participants answered to questions regarding the causes and context of the partner loss, such as relationship quality, marital and sexual satisfaction,

[1] The LIVES Intimate Partner Loss Study data are publicly available and free of charges at the Data and Research Information Services (DARIS, FORSbase) of the Swiss Foundation for Research in the Social Sciences: https://forscenter.ch

mastery and agency on the events. In addition, psychological (e.g., personality), social (e.g., new partner) and financial (e.g., financial adequacy) resources were assessed, as well as socio-economic status. Well-being outcomes, such as psychological (e.g., depressive symptoms), social (e.g., quality of contacts), physical (e.g., medication intake) and financial well-being across different time-points were addressed. The descriptive information of the most important variables for this thesis are presented in the following tables (Tables 1.1, 1.2, 1.3), while findings will be presented in the following chapters.

Table 1.1 Age (Mean) and Gender Distribution (Frequency) in the Total Sample and in Divorced, Widowed and Married Subgroups

	Divorced	Widowed	Married
	M (SD) or n (%)	M (SD) or n (%)	M (SD) or n (%)
Total sample	54.45 (9.16)	71.48 (9.61)	64.71 (13.62)
Ages 40-49	385 (36)	11 (2)	190 (18)
Ages 50-59	383 (36)	37 (7)	204 (19)
Ages 60-69	246 (23)	198 (35)	231 (22)
Ages 70-80	50 (5)	183 (32)	245 (23)
Ages 80+	13 (1)	136 (24)	189 (18)
Gender (women)	635 (59)	325 (58)	563 (53)

Note: Age range for divorced 41-88 years, for widowed 43-91, for married 41-92.

Table 1.2 Mean Levels of Child Adversity Variables (Total Score and Individual Items) for Divorced, Bereaved and Married Individuals

	Divorced	Widowed	Married	Difference Test
	M (SD)	*M* (SD)	*M* (SD)	*F*
Childhood Adversity (Mean Score)	1.79 (0.80)	1.54 (0.66)	1.47 (0.55)	39.49***
Not feeling loved or important or valued by no one in the family	2.29 (1.35)	1.85 (1.13)	1.79 (1.07)	32.18***
Being frightened or injured by an adult reference person	2.31 (1.34)	1.88 (1.16)	1.78 (1.06)	34.66***
Not having enough to eat or no clean clothing or not receiving enough care	1.48 (0.99)	1.40 (0.91)	1.28 (0.74)	8.83***
Witness of parental violence	1.64 (1.11)	1.41 (0.85)	1.38 (0.84)	13.62***
Being beaten, kicked or burnt by an adult person	1.70 (1.08)	1.47 (0.89)	1.44 (0.82)	14.04***
Being sexually touched or forced to touch another person sexually?	1.29 (0.73)	1.19 (0.60)	1.13 (0.46)	10.97***

Note: Childhood adversity represents the mean composite score of the frequency of events. Answering format ranged from 0 = *never* to 4 = *very often*
*** $p < .001$.

Table 1.3 Mean and Standard Deviations of Study Variables Pooled Across Waves and by Wave

	Divorced (n = 1062)	Widowed (n = 526)	Married (n = 1010)	Difference Test
	M (SD)	M (SD)	M (SD)	F
Self-Continuity (pooled)	2.15 (1.07)	2.64 (0.96)	2.76 (0.92)	91.44***
Wave 1	2.03 (1.13)	2.57 (1.03)	2.69 (0.97)	113.45***
Wave 2	2.01 (1.13)	2.56 (1.04)	2.67 (0.96)	87.43***
Wave 3	3.36 (1.19)	3.80 (1.03)	3.80 (1.04)	26.45***
Social-Continuity (pooled)	0.56 (0.78)	0.52 (0.78)	0.48 (0.74)	2.45+
Wave 1	0.64 (0.98)	0.59 (0.98)	0.55 (0.94)	2.40+
Wave 2	0.43 (0.84)	0.45 (0.88)	0.40 (0.83)	0.88
Wave 3	0.76 (0.94)	0.82 (1.13)	0.83 (1.03)	0.46
Social Loneliness (pooled)	1.15 (0.98)	0.93 (0.87)	0.83 (0.84)	30.12***
Wave 1	1.19 (1.07)	0.94 (0.97)	0.89 (0.94)	25.67***
Wave 2	1.09 (1.06)	0.90 (0.98)	0.80 (0.88)	18.10***
Wave 3	1.01 (1.03)	0.86 (0.88)	0.78 (0.86)	10.31***
Emotional Loneliness (pooled)	0.95 (0.90)	0.97 (0.86)	0.58 (0.64)	62.45***
Wave 1	1.00 (0.98)	0.97 (0.96)	0.55 (0.68)	77.71***
Wave 2	0.93 (0.99)	0.94 (0.89)	0.58 (0.71)	37.56***
Wave 3	0.85 (1.00)	0.89 (0.86)	0.58 (0.67)	23.15***
Life satisfaction (pooled)	4.86 (1.18)	5.28 (0.99)	5.51 (0.91)	89.22***
Wave 1	4.82 (1.30)	5.31 (1.08)	5.56 (0.98)	114.49***
Wave 2	4.89 (1.22)	5.27 (1.04)	5.53 (0.92)	71.73***
Wave 3	5.00 (1.22)	5.34 (1.01)	5.52 (0.95)	40.93***

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

1.4 Outline, Purpose of the Thesis and Contribution

Using the LIVES Intimate Partner Loss Study, this PhD addressed the issue of continuity perceptions in adaptation to partner loss, due to divorce or bereavement, in the second half of life. Aiming at closing the literature gaps described before, the main research questions and contributions of this dissertation were:

1. Which are the life course determinants of later life self-continuity after divorce and bereavement? (Chapter 2)

In this chapter, given the limited research on the factors that may predict self-continuity in later life, we examined inter-individual differences and intra-individual change as determinants of self-continuity after divorce and bereavement. Following a life course perspective, we investigated the role of age for the development of self-continuity and how it differed depending on distal and proximal stressors and resources. This chapter contributed to the existing literature by highlighting the long-lasting influence of childhood adversity on self-continuity after later life critical events, as theory (Erikson, 1968; Atchley, 1989) suggested that it is in this life stage that it is mostly needed.

In chapter 2, the research question was explored with a longitudinal perspective, as the three waves of data were included in the analysis. We used multilevel modeling, as we were interested in investigating how self-continuity changed over time and whether there were level differences that could be attributed to the predictors. The models were applied to both divorced and bereaved individuals, having experienced the loss in the past five years, as well as to a married control group.

2. Are there time-dependent differential benefits of personality, multiple important group memberships and self-continuity for social loneliness after divorce in later life? (Chapter 3)

In the context of later-life divorce, this chapter focused on the importance of psychological and social resources as predictors of social loneliness, with a particular focus on time-dependent differences of adaptation and a special interest in identity-promoting aspects, such as self- and social-continuity. The contribution of this chapter laid in the investigation of adaptation to later-life divorce as a function of timing and differential resources. Specifically, self-continuity and multiple important memberships in social groups had never been investigated concurrently as protective factors against social loneliness after divorce, taking into account different time frames.

This chapter was completed earlier, when not all waves of data were available. Therefore, only wave one was included in the analysis. Multiple hierarchical regressions were used to identify predictors of post-divorce social loneliness, comparing two groups of divorcees (short-term timeframe: up to 2 years since divorce; and long-term timeframe: 2 to 5 years since divorce) and a group of continuously-married individuals (reference group).

3. To what extent does self-continuity increase in later life, and how does this increase has an effect on how childhood adversity influences later life outcomes? (Chapter 4)

In Chapter 4, we investigated whether change in self-continuity perceptions has an effect on the extent to which childhood adversity affects well-being for divorcees and widowers in the second half of life. Specifically, following the life course perspective by Spini and colleagues (2017) we examined whether self-continuity mediated the links between childhood adversity and life satisfaction, social loneliness and emotional loneliness. According to life story narratives, individuals develop a stronger sense of self-continuity when they think and talk about their past experiences. However, there are critical life events, such as childhood adverse events, that may be difficult to talk about or incorporate them to one's life story. Therefore, we expect that less adversity in childhood will positively impact

the sense of self-continuity and in turn self-continuity protect the individual from the negative consequences of later life divorce or bereavement on well-being. We expected that a difficult childhood and potential trauma from that developmental stage would be likely to have a negative impact on their ability to create a coherent self, as expressed by poor self-continuity, making them, in turn more vulnerable and less able to cope to a particular crisis, as indicated by poorer well-being. This chapter added to the literature with the following contributions: Distal childhood adverse events have a significant impact on different measures of well-being in the second half of life for individuals having experienced divorce or bereavement. In addition, self-continuity was investigated for the first time as a coping mechanism for critical life events in later life, taking into account not only childhood adversity but also social-continuity. Differential mediational patterns were examined for divorcees, widowers and married individuals.

The third research question was investigated using all waves of data. We used multilevel mediational models in order to assess whether self-continuity acted as a mediator on the link between childhood adversity and later life well-being. Social-continuity, represented by the number of important social groups, was also included in the analysis as predictor of well-being. In this chapter, well-being was defined as satisfaction with life, and as social and emotional loneliness. Similar to Chapter 2, in Chapter 4 the research question was investigated in both divorcees and bereaved individuals, using a continuously married sample as reference.

Each of these chapters can also be read as an independent article. It is of note that in Chapter 3, the focus of research differed from the other two. In specific, in Chapters 2 and 4, self-continuity was the main identity mechanism that was investigated, while in Chapter 3 the differential patterns of adaptation were the main focus of research, using, however, self-continuity as one of the main predictors. Lastly, in the final chapter of this work (Chapter 5),

conclusions were outlined by, first, offering an overview of the PhD thesis and its main contributions, and then proposing ideas for future work and implications.

During the period as doctoral student, the author has contributed with the following relevant publications:

Lampraki, C., Jopp, D. S., Spini, D., & Morselli, D. (2019). Social loneliness after divorce: time-dependent differential benefits of personality, multiple important group memberships, and self-continuity. *Gerontology*, *65*, 275–287. doi:10.1159/000494112

Lampraki, C., Spini, D., & Jopp, D. S. (2017). La participation sociale et le sentiment de solitude après le divorce dans la deuxième moitié de la vie/Gesellschaftliche Teilhabe und Einsamkeit nach einer Scheidung in der zweiten Lebenshälfte. *Angewandte GERONTOLOGIE Appliquée.*

Lampraki, C., Spini, D., & Jopp, D. S., (2020). *Predictors of later life self-continuity after critical life events.* Manuscript submitted for publication.

Lampraki, C., Jopp, D. S., & Spini, D., (2020). The mediating role of self-continuity on the link between childhood adversity and social and emotional loneliness after critical life events in later life. Manuscript submitted for publication.

In addition to the relevant publications, during the period as doctoral student, the author contributed with the following unrelated publication:

Jopp, D. S., Lampraki, C., & Meystre, C. (2018). Vulnérabilité et résilience chez les centenaires. Surmonter la vulnérabilité : perspectives en matière de parcours de vie. *Gérontologie et Société, 40*(3), 11-130.

Meystre, C., Jopp, D.S., Lampraki, C., Znoj, H., & Brodbeck, J. (2020). *Professional support after partner loss: Prevalence and predictors of help-seeking behavior.* Manuscript submitted for publication.

2 Predictors of Self-Continuity After Critical Life Events in Later Life[2]

Abstract

Self-continuity is an identity mechanism that inter-connects past and present experiences with future expectations, creating a coherent whole, which may help overcome adversity. However, research is limited regarding the life course determinants of self-continuity and who benefits from self-continuity when facing adversity. Using a life-course perspective, we investigate how the occurrence of critical life events (e.g., childhood adversity, partner loss) and the accumulation of resources (e.g., positive attitudes) across the life course may affect later-life self-continuity. The longitudinal (three waves) LIVES Intimate Partner Loss Study was used. The sample consisted of individuals having experienced divorce (N = 403, M_{age} = 55.43) or bereavement (N = 295, M_{age} = 69.91) in the second half of life, using a long-lasting married group as reference (N = 535, M_{age} = 65.60). Multilevel hierarchical models were used. Results indicated that as individuals grew older, they experienced more self-continuity regardless of having lost a partner in later life or not. More childhood adversity was associated with less self-continuity for all groups. Divorcees with more childhood adversity felt significantly less self-continuity as they grew older than divorcees having experienced less childhood adversity. Less hope and more childhood adversity were related to lower levels of self-continuity for the widowers. More hopeful married individuals felt more self-continuity as they grew older than less hopeful ones. In sum, findings illustrated that self-

[2] Lampraki, C., Spini, D., & Jopp, D. S., (2020). *Predictors of later life self-continuity after critical life events.* Manuscript submitted for publication.

continuity changes as a function of age, but also differed based on the adverse events experienced across the life course and the positive outlook one had towards life.

Keywords: identity mechanism, childhood adversity, partner loss, critical life events, life course

2.1 Introduction

Self-continuity is a central identity mechanism for maintaining a coherent sense of self and may be at risk when individuals are confronted with critical life events or difficult transitions throughout the life course (Spini & Jopp, 2014). Being able to accept early- or later-life changes and the loss of valued social roles may enhance self-continuity, while the accumulation of adversity throughout the life course (e.g., childhood events, critical life events, age-related limitations) may hinder self-continuity and well-being, and increase vulnerability (McCarthy & Maughan, 2010; Turner & Lloyd, 1995). Although high self-continuity has been found to facilitate adaptation to new life conditions (e.g., Lampraki, Jopp, Spini, & Morselli, 2019), research so far is quite limited regarding its determinants, leaving open the question of which may be the mechanisms or processes contributing to self-continuity. Using a life course perspective which conceives vulnerability as dynamics of stress and resources (Spini, Bernardi, & Oris, 2017), this study will examine possible distal and proximal predictors of interindividual differences and intraindividual change in self-continuity for divorced and widowed individuals, having experienced the loss of their partner during the past five years (divorce/separation or bereavement), using a married group as reference.

2.1.1 Self-Continuity

Recalling key moments of one's life, such as becoming a parent or getting divorced, childhood memories with a positive or negative emotional valence or visualizing the future as bright and welcoming or gloomy and dark are all elements that construct our own personal life-story and identity (McAdams, 2011). Self-continuity is an overarching identity mechanism that incorporates the various changes in life, creating a meaningful and cohesive entity, and can contribute to a stronger perception of unique- and self-ness (Figure 1).

According to the continuity theory of normal aging by Atchley (1989), which views continuity as a dynamic identity structure, individuals will feel self-continuity (internal continuity) if they are able to reflect upon their memories, identifying a persistent inner structure, such as ideas, temperament, personal characteristics or experiences. In addition, Atchley (1989) distinguishes self-continuity from social continuity (external continuity) which can be experienced with respect to the perceived structure of persistent social-environmental aspects, such as social relationships or activities. In this paper we will focus on self-continuity.

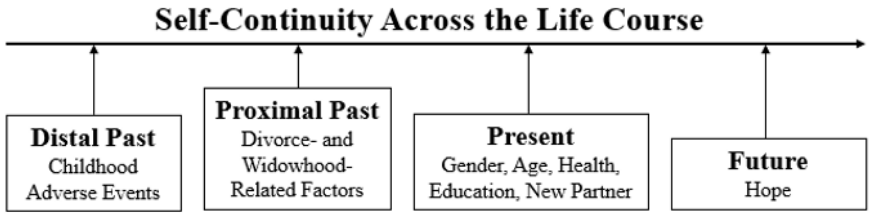

Figure 2.1 Life course model of self-continuity

Before Atchley, Erikson (1968) had described the emergence of self-continuity with the resolution of the fifth stage crisis occurring in adolescence, providing an answer to the question "Who am I?" in relation to one's past or future self, and with regard to others. In this stage "ego identity" is achieved as a positive developmental outcome, while the inability to create a distinctive identity leads to role disorientation. For later life, Erikson described that in the last stage of development (maturity), older people who can reflect upon their past with a sense of fulfillment are able to maintain ego identity. While Erikson proposed development and identity formation through resolving crises, Cohler (1982) introduced the idea that storytelling or narration of the personal life-story creates a sense of selfhood and identity, giving meaning to the self and the surrounding world. The notion of being able to integrate specific life experiences into a coherent life story and reflect upon one's own past was later

described as a key process of achieving continuity of the self through time by other researchers as well (Bluck & Alea, 2008; Breakwell, 1988, Bruner, 1991; Habermas & Köber, 2015; McAdams, 2011).

Self-continuity is not only relevant with respect to past experience, but also to future expectations (future self-continuity; Hershfield, 2011; Rutt & Löckenhoff, 2016a). The pioneer work of Markus and Nurius (1986) introduced the concept of "possible selves", describing how individuals construct hoped-for and feared images of their future self. Later Frazier and Hooker (2006) showed that the projections of future selves (hoped-for or feared) were associated to goal setting and decision taking, aiming at linking the present and the future. For instance, individuals who imagined their future self as healthy (i.e., had a hoped-for future self-representation) also engaged in the present in healthy behaviors, and thereby created continuity with their future self. On the contrary, pessimistic attitudes towards life prevented individuals from overcoming stress easily and thus maintaining self-continuity (Brandtstädter & Greve, 1994).

2.1.2 Self-Continuity and Critical Life Events

While childhood and adolescence represent critical life periods for the emergence of self-continuity, there is still a lack of research linking these life phases to adult identity. Studies addressing other outcomes, such as physical and mental health, however, document important effects of early life experiences on later life. For instance, childhood adverse events, such as poverty, neglect, or sexual harassment, have a strong impact on adult well-being (Turner & Lloyd, 1995). Research has shown that experiencing stress and trauma early in life may cause permanent changes to the brain structure (e.g., Lupien, McEwen, Gunnar, & Heim, 2009) and to the Hypothalamic-Pituitary-Adrenal (HPA) axis, the key physiological system regulating stress experiences and coping with adversity and threat (e.g., Cicchetti &

Rogosch, 2009). Long-term effects of such changes have been found for various outcomes including higher stress reactivity and lower cognitive functioning (Hanson et al., 2015; Lupien et al., 2009). Similarly, adversity in childhood may affect other psychological capacities such as identity mechanisms. Specifically, Markovitch, Luyckx, Klimstra, Abramson, and Knafo-Noam (2017) found that aspects of identity formation, such as identification with commitment and commitment making, were mostly related to environmental factors and less to genetics. In addition, Grotevant, Lo, Fiorenzo and Dunbar (2017) found that adjustment issues of adopted adolescents, that were related to the development of identity, endured over a period of 8 years, suggesting the long-lasting effects of identity problems through adulthood.

In order to grow and develop in a positive way, apart from addressing material and emotional needs, children require a predictable environment or a routine (Cicchetti & Lynch, 1995; Evans & Wachs, 2010), and they rely on adults for this environmental predictability. The development of identity structures may be hampered when children face adversity, including neglect or maltreatment from those who should provide love and protection, which in turn could result in lasting psychological vulnerability. In line with this, McCarthy and Maughan (2010) found that childhood adversity was linked to poor styles of attachment that related to negative relationship patterns in adult life and to a more fragile identity. Similarly, one may assume that self-continuity is affected in a negative way, when adverse events impact negatively on early stages of development, which would increase the risk of dynamics of vulnerability in adult life.

In adulthood, self-continuity is reinforced by the strong relation between the personal life narrative and the conceptualization of the self. Although always required to maintain a storyline throughout the life course, self-continuity becomes particularly important when facing unpredictable life changes and challenges (Breakwell, 1988). As Erikson (1968)

suggested, self-continuity is strongly needed in later life, when individuals tend to be confronted with loss and restrictions, in order to protect ego identity. When trying to cope with the event, lack of self-continuity may prevent the individual from assimilating positive and negative changes and incorporating them to their life narrative. However, little is known regarding which specific critical life events may relate to a positive or negative change in self-continuity and if the impact of these events depends on the specific developmental stage in which they were experienced.

Losing an intimate partner, either through divorce or death, is a critical adult life event due to which individuals lose the potentially valued role of being a husband or a wife and their daily life routines. Given the importance of this social role in our society, this loss is likely to put at risk a person's adult identity and its perception of self-continuity. While self-continuity was found to be a protective factor when faced with partner loss, in that those individuals with a higher sense of self-continuity showed better mental health outcomes (Lampraki et al., 2019), little is known about which factors contribute to maintaining self-continuity in the context of this crisis. In divorce, for instance, the initiation of the marriage dissolution may show the need to regain self-continuity that has been lost during the unsuccessful marriage. Widowers may experience the loss as more or less difficult, depending on whether they are able to accept the loss as part of their life-story and move on. In the context of marriage, where no partner loss has occurred, feeling happy about one's partnership may relate to higher self-continuity.

2.1.3 Self-Continuity and Resources

Considering change as well as levels of self-continuity over the life span, other factors may also play a role. For instance, availability of resources (e.g., material, psychological, social) has been found to be of high importance in the context of critical life events, being

linked to coping strategies and well-being outcomes (Jopp & Schmitt, 2010). With regard to identity, more resourceful individuals (e.g., better educated) may be less affected by critical life events and therefore be more able to cope with significant life changes, maintaining self-continuity. Re-partnering after divorce or widowhood may increase one's social resources, with regaining a lost role and, therefore, reinforcing the sense of continuity. Similarly, psychological resources such as positive life attitudes may have an effect. For example, expecting the future to be bright despite having experienced a partner loss could enhance self-continuity. Older aged individuals have been found to regulate better their negative emotions and tend to focus more on the bright side of life (Carstensen, Fung, & Charles, 2003). Therefore, the relationship between positive life attitudes and self-continuity may become stronger as individuals grow older.

So far, research on the importance of resources for self-continuity has mostly been addressed in experimental studies. For instance, Sedikides, Wildschut, Routledge, & Arndt (2015) found that experimentally imposed nostalgia counterbalanced self-discontinuity. The study by Rutt and Löckenhoff (2016b) highlighted the importance of age for self-continuity: older individuals showed higher temporal self-continuity than younger individuals when confronted with the same experimental manipulation, and various covariates, including personality, subjective health, or cognition, could not account for these age differences. Thus, complementing these studies, we propose to consider a combination of resources and stressors, as well as a longitudinal design covering a large age range in order to understand better self-continuity over the life course.

2.1.4 The Present Study

In the present study, we will examine inter-individual differences and intra-individual changes in self-continuity in later life, as a function of age and of the interplay between

sources of stress and resources. Specifically, we will focus on the potential influence of socio-demographic characteristics (i.e., gender, age, and education), subjective health, distal and proximal event-related factors on self-continuity in later life, as well as having a new partner, and hope as important resources. Given the limited research on which factors predicted self-continuity in later life, we aim in investigating the following questions:

1. To what extent does self-continuity increase with age? In line with Rutt and Löckenhoff (2016b), we expect an increase in levels of self-continuity related to advancing age across all investigated groups (i.e., divorced, bereaved and married). In addition, we hypothesize that the increase in self-continuity will also be strongly related to increases in hope, based on the theory of positive self-projections (Frazier & Hooker, 2006). Thus, when individuals feel more hopeful than they usually do, self-continuity should increase. Finally, we expect that age and life attitudes will interact: individuals with more positive life attitudes towards the future (i.e., more hope) will have significantly higher self-continuity as they age, while individuals with more negative life attitudes towards the future will not experience this age "normative" increase.

2. Why do some people experience more self-continuity than others? Is it the absence of critical life events throughout the life course, a matter of resource availability, or both? We assume that more resourceful individuals and those with less stressful lives (absence or limited critical life events, or childhood adversity) will experience more self-continuity than individuals with less resources or more critical life events. We expect childhood adversity to be negatively linked to self-continuity in later life, across marital status groups. In addition, we expect that divorcees who have experienced more adversity in their childhood will have lower levels of self-continuity as they age, as these events relate to less positive styles of attachment in later life and to a fragile relational identity structure (McCarthy & Maughan, 2010). Resourceful individuals (e.g., better educated) and those with less stressful lives

(absence or limited critical life events, or childhood adversity) will experience more self-continuity than others with less resources or more critical life events.

2.2 Methods

2.2.1 Sample and Procedure

We used the LIVES Intimate Partner Loss Study (Perrig-Chiello, Hutchison, & Morselli, 2015), which was conducted in Switzerland (German- and French-speaking parts) from 2012 to 2016 in three waves (every two years). It is a prospective longitudinal study examining adaptation to partner loss, such as divorce and bereavement, in the second half of life, with a matched married group as reference. The sample was stratified by age, gender and marital status. Race or ethnicity were not assessed, instead origin was reported: *Swiss* = 87%, *other European* = 12%, *other (Asian, American, Australian)* = 1%. Participants were mainly recruited through the Federal Office of Statistics and a minority through advertisements, filling out a paper and pencil questionnaire or an identical online version. The present study included 1233 participants aged 46 to 92 years old including: a) divorced/separated (n = 403), b) widowed (n = 295), and c) married individuals (n = 535). We included individuals that had experienced the partner loss in less than five years since the first wave administration of the questionnaire, and married individuals that reported being continuously married (without divorce or bereavement in their past). The study ("LIVES Intimate Partner Loss Study") has been approved by the ethics committee of the University of Bern.

2.2.2 Measures

Outcome. *Self-Continuity* was measured with three items from the Exeter Identity Transitions Scales (Haslam et al., 2008): "I am the same person as I always was", "With time a lot of things have changed, but I'm still the same person", and "I am a different person than

I was in the past". Participants answered on a 5-point scale (1 = *does not apply to me at all* to 5 = *fully applies to me*). A mean score was calculated with higher values indicating higher self-continuity. The scale had good internal consistency across study waves (e.g., Cronbach's α = .81 at wave 1).

Predictors. Socio-demographic variables included *gender* (0 = m*en*, 1 = w*omen*), *age, education* (i.e., highest educational degree; 6-point answering format 1 = *primary school* to 6 = *university or polytechnical university*) and *subjective health* (i.e., "How is currently your health?"; 1 = *very bad* to 5 = *very good*).

New Partner was measured with a single item asking whether participants had a current romantic relationship (1 = *yes*, 0 = *no*) and applied only to the divorced and widowed groups.

Hope was measured with the short 10-item version of Beck's Hopelessness Scale (original version, Beck, Weissman, Lester, & Trexler, (1974); German version; Krampen, 1994; French version: Bouvard et al., 1992) using a 6-point answering format (1 = *very much untrue* to 5 = *very much correct*): E.g., "I'm looking to the future with optimism and enthusiasm". The scale had good internal consistency (e.g., Cronbach's α = .79 at wave 1). A mean composite score was calculated with higher values indicating higher levels of hope.

Childhood Adverse Events were measured with a set of six items. The items asked participants to indicate to what extent they had experienced one or more of the following events in their childhood or adolescence (0-18 years old): a) "Did you have the feeling that, in your family, no one loved you or thought of you as being someone important or of value?", b) "Have you been frightened or hurt by a person of reference?" c) "You didn't have enough food to eat, or clean clothes, or you were not cared after when you needed it.", d) "Have you witnessed violence between your parents?", e) "Did an adult beat you with an object such as a belt or a stick, kicked or burned you?", f) "Have you been touched by a reference person or

authority figure, or have you been forced to sexually touch another person?". The answering format ranged from 0 = *never* to 4 = *very often.* A mean-composite score was calculated with higher values indicating more childhood adversity (Cronbach's α =.77).

The group variable (i.e, divorced, bereaved, married) was created using a filter question (i.e., "Have you ever lost your long-term partner through separation, divorce or death, and when?"). Individuals having lost their partner in the past five years were included in the study, along with continuously married individuals, forming a categorical variable (1 = separated/divorced, 2 = widowed, 3 = married).

Time since event was calculated by subtracting the year of the divorce or bereavement from the year of questionnaire administration.

Divorce-related variable: *Initiator Status* measured who initiated the divorce (0 = *my ex-spouse initiated*, 1 = *both of us*, 2 = *I initiated*).

Bereavement-related variable: *Difficult Bereavement* was measured with a single item asking participants how they experienced their loss on a 10-point scale (1 = very positively to 10 = very negatively).

Marriage-related variable: *Marriage Happiness* indicated how happy married individuals are currently with their partnership (1 = *very unhappy* to 10 = *very happy*) and was measured with a single item.

2.2.3 Analytical Strategy

We tested three separate multilevel linear regression models for divorced, widowed and married individuals with self-continuity as outcome and socio-demographic characteristics (i.e., gender, age, education), subjective health, a new partnership, hope, childhood adverse events, and event-specific characteristics as predicting variables. Centering of predicting variables was performed to enhance the interpretability of the results and obtain

more stable estimates (Aiken & West, 1991; Hoffmann & Stawski, 2009). Person-mean centered variables (time-varying variables; i.e., age, subjective health and hope) were included in the models to test within-subjects variation. In order to investigate between-subjects variation and improve interpretability of the model parameters, we group-mean centered (using the filter variable distinguishing divorced, widowed and married individuals) the person-mean of time-varying variables (e.g., age) and the variables that did not vary across waves (e.g., difficult bereavement). Categorical variables (i.e., gender, initiator status) were not centered and entered in the models as factors. Interaction effects were included in the final model. We used an unstructured covariance matrix for the random parameters. We present those models that had the best fit to the data for each group, which we determined by two relative model fit indices, namely Akaike's information criterion (AIC) and -2 Log Likelihood (-2LL). Interactions that did not increase the fit of each model were excluded in order to obtain the most parsimonious model (see Appendix for detailed equations of final models). For each group (e.g., divorcees), the Intra-class Correlation Coefficient (ICC; Raudenbush & Bryk, 2002) was calculated first in fully unconditional models and then in every subsequent model. The variance explained by the final model was calculated with the proposed method of Kreft and de Leeuw (1998) and Singer (1998). The models were tested with maximum likelihood estimation, using SPSS version 24.

2.3 Results

Descriptive statistics and bivariate correlations are presented in Tables 2.1 (divorcees), 2.2 (widowers), and 2.3 (married individuals). Means and frequencies refer to the values of the study variables at the first (or single) data collection and correlations are pooled across-waves estimates. Mean levels of changes in self-continuity over time of divorced/separated, widowed and married individuals are graphically presented in Figure 2.2.

Table 2.1 Descriptive Statistics and Pooled Bivariate Correlations of Variables for Divorcees (n = 403)

		M (SD) or %	1	2	3	4	5	6	7	8	9	10
1	Self-Continuity	1.88 (1.13)	1									
3	Age	55.43 (6.29)	.14***	1								
2	Gender (Men)	33%	-.08**	-.16***	1							
4	Education	4.18 (1.28)	-.05+	.02	-.17***	1						
5	Health	3.97 (0.85)	.11***	.04	-.02	.10**	1					
6	New partner (yes)	27%	.05	-.05+	-.27***	.01	.11***	1				
7	Hope	4.36 (0.75)	.07*	.07*	-.08**	.17***	.50***	-.19***	1			
8	Childhood adverse events	1.81 (0.78)	-.19***	-.12***	.12***	-.16***	-.20***	-.02	.02	1		
9	Time since event	2.49 (1.57)	.19***	.27***	-.09**	-.07*	.01	.16***	-.16***	.02	1	
10	Initiator status (ref.: my ex-initiated)	41%	.05+	.01	-.11***	.07*	-.03	-.05+	.17***	-.09**	.002	1
	Both	13%										
	I initiated	46%										

Notes. Descriptive statistics refer to data collected in wave 1 (except from childhood adverse events which was collected in wave 3). In correlations, variables refer to pooled across the three waves estimates. $^{+}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$.

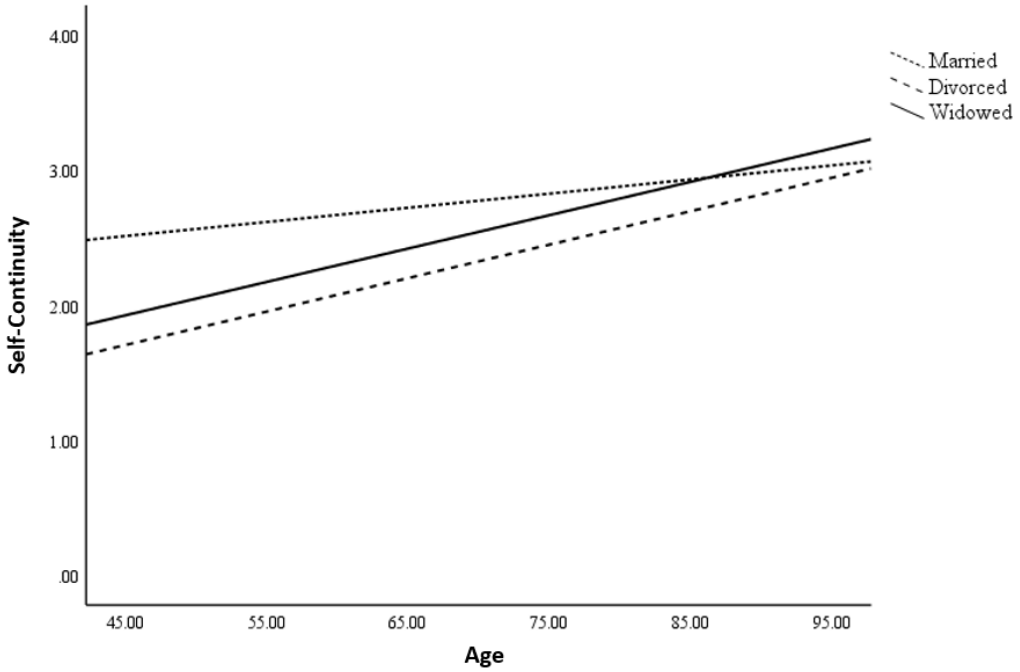

Figure 2.2 Mean levels of self-continuity by age and marital status group

Although all groups showed a significant increase in levels of self-continuity over time, younger aged divorcees and widowers had significantly lower levels of self-continuity than the married.

Table 2.2 Descriptive Statistics and Bivariate Correlations of Variables for Widowers (n = 295)

	M (SD) or %	1	2	3	4	5	6	7	8	9	10
1 Self-Continuity	2.51 (1.06)	1									
3 Age	69.91 (8.75)	.20***	1								
3 Gender (Men)	40%	-.08*	-.24***	1							
4 Education	3.67 (1.35)	-.16***	-.09**	-.14***	1						
5 Health	3.86 (0.70)	.07*	-.17***	-.03	.06+	1					
6 New partner (yes)	11%	.07*	-.14***	-.31***	.06+	.16***	1				
7 Hope	4.27 (0.63)	.12***	-.19***	-.03	.14***	.40***	.20***	1			
8 Childhood adverse events	1.51 (0.60)	-.20***	.09**	.04	.08*	-.14***	.06+	-.14***	1		
9 Time since event	3.17 (1.34)	.23***	.24***	-.15***	-.09**	-.001	.16***	.01	-.06+	1	
10 Difficult Bereavement	3.60 (2.68)	.13***	.22***	-.02	-.15***	-.04	-.03	.01	.02	.06+	1

Notes. Descriptive statistics refer to data collected in wave 1 (except from childhood adverse events which was collected in wave 3). In correlations, variables refer to pooled across the three waves estimates. $^{+}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$.

Table 2.3 Descriptive Statistics and Bivariate Pooled Correlations of Variables for Married Individuals (n = 535)

	M (SD) or %	1	2	3	4	5	6	7	8
1 Self-Continuity	2.70 (0.93)	1							
2 Age	65.60 (11.19)	.13***	1						
3 Gender (Men)	47%	-.07**	-.17***	1					
4 Education	3.73 (1.39)	-.06*	-.001	.04	1				
5 Health	3.99 (0.69)	.09**	-.23***	-.03	.13***	1			
6 Hope	4.38 (0.59)	-.07**	.30***	.02	-.27***	-.31***	1		
7 Childhood adverse events	1.48 (0.57)	-.14***	-.10***	.01	-.08**	-.07**	.11***	1	
8 Marriage Happiness	8.47 (1.82)	.10***	.08**	-.06*	.03	.10***	-.14***	-.10***	1

Notes. Descriptive statistics refer to data collected in wave 1 (except from childhood adverse events which was collected in wave 3). In correlations, variables refer to pooled across the three waves estimates. +p < .10; *p < .05; **p < .01; ***p < .001.

We continued by adding fixed and random effects in the models and, finally, interaction terms. The final and most parsimonious models for self-continuity are presented separately for divorced, widowed and married individuals in Table 2.4. For the within-subjects' effects, an increase in age was related to an increase in self-continuity across all groups (divorcees: $B = .10$, $p < .001$; widowed: $B = .08$, $p < .001$; married: $B = .04$, $p < .001$), indicating that as individuals grew older they showed higher levels of self-continuity, regardless of whether they had experienced a critical life event or not. In addition, increase in hope was marginally linked to higher self-continuity for the married ($B = .09$, $p = .07$).

For the between-subjects' differences, individuals who were older than the population mean value experienced overall more self-continuity across groups (divorcees: $B = .01$, $p < .10$; widowed: $B = .02$, $p < .01$; married: $B = .01$, $p < .01$). No gender differences were observed. Being more educated than the population average was related to less self-continuity in later life across all groups (divorcees: $B = -.09$, $p < .05$; widowed: $B = -.08$, $p < .05$; married: $B = -.11$, $p < .001$). Compared to the population average, more hopeful widowed and married individuals experienced higher self-continuity (widowed: $B = .28$, $p < .05$; married: $B = .17$, $p < .05$). In addition, individuals with more adverse childhood events than the population mean value (divorcees: $B = -.29$, $p < .001$; widowed: $B = -.30$, $p < .01$; married: $B = -.23$, $p < .001$) felt less self-continuity in later life, indicating that having experienced more adversity as a child was related to a weaker sense of continuity in later life regardless of marital status. Lastly, having more time passed since the partner loss was beneficial for self-continuity in both divorcees ($B = .06$, $p < .05$) and widowers ($B = .12$, $p < .01$). No other event-related factor (e.g., difficult bereavement, initiator status) nor having a new partnership were predictive of self-continuity. Regarding the interaction effects, divorcees with less childhood adversity had significantly higher levels of self-continuity than divorcees with more adversity during childhood ($B = -.05$, $p < .05$; Figure 2.3) as they grew older.

Table 2.4 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates on Self-Continuity

	Divorced		Widowed		Married	
	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Within-Subjects' Effects						
Intercept	1.99***	.09	2.63***	.07	2.70***	.05
Age	.10***	.02	.08***	.02	.04***	.01
Health	.03	.05	.03	.05	.002	.03
Hope	-.01	.06	.02	.07	.09+	.05
Fixed Between-Subjects' Effects						
Age_{mean}	.01+	.01	.02**	.01	.01**	.003
Gender (1 = *women*)	.16	.11	-.10	.12	.11	.07
Education	-.09*	.04	-.08*	.04	-.11***	.03
$Health_{mean}$	.14+	.08	.03	.10	.18**	.07
New Partner (0 = *no*)	.01	.13	.14	.17	-	-
$Hope_{mean}$	-.03	.09	.28*	.09	.17*	.08
Childhood Adverse Events	-.29***	.07	-.30***	.09	-.23***	.06
Time since event	.06*	.03	.12**	.04	-	-
Initiator Status (ref.: my ex- initiated)						
Both of us	-.01	.16	-	-	-	-
I initiated	-.09	.11	-	-	-	-
Difficult Bereavement	-	-	.02	.02	-	-
Marriage Happiness	-	-	-	-	.02	.02
Interactions						
Age[a]*Childhood Adverse Events	-.05*	.02	-	-	-	-
Childhood Adverse Events*$Hope_{mean}$	-.21*	.09	.25*	.12	-	-
Age[a]*$Hope_{mean}$	-	-	-	-	-.05**	.02
Random Effects						
Intercept	.84***	.07	.67***	.06	.61***	.04
Slope Age	.05***	.01	.04***	.01	.03***	.004
Intercept*Slope Age	-.05**	.02	-.04**	.01	-.02+	01
Residual Variance	.23***	.02	.19***	.02	.14***	.01
AIC	2849.44		1921.23		3133.56	
-2LL (df)	2809.44 (20)		1885.23 (18)		3101.56 (16)	
Within-Subjects' Pseudo R^2	.06		.13		.10	
Between-Subjects' Pseudo R^2	.50		.47		.48	
ρ	.79		.78		.81	

Notes: a = *within-subjects variable*. df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

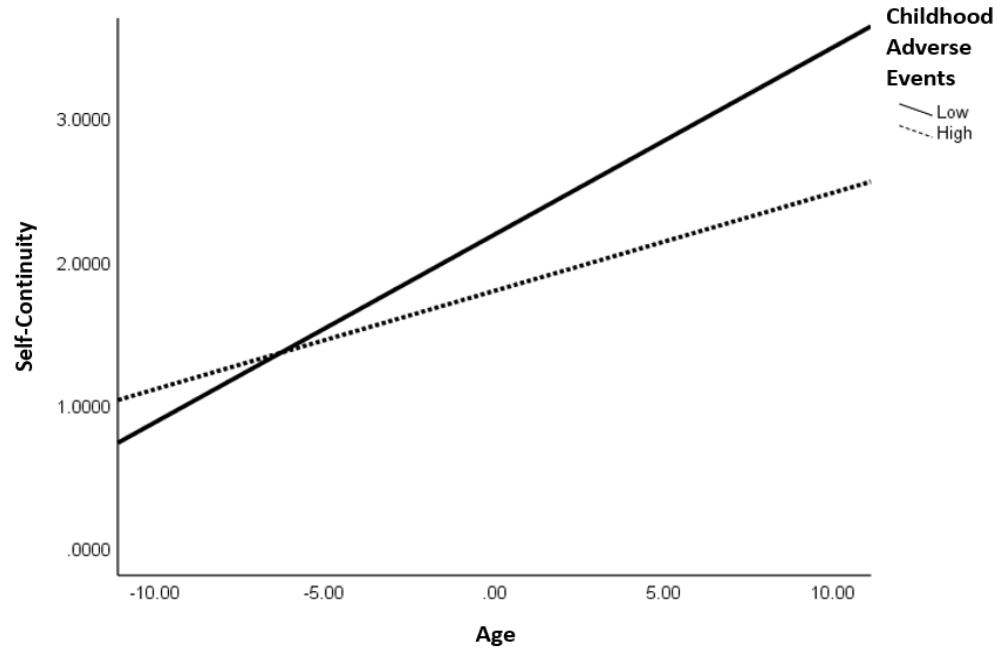

Figure 2.3 Mean levels of self-continuity (fixed predicted values) illustrating the significant interaction between age (person-mean centered) and childhood adverse events (group-mean centered) for divorcees (n = 403).

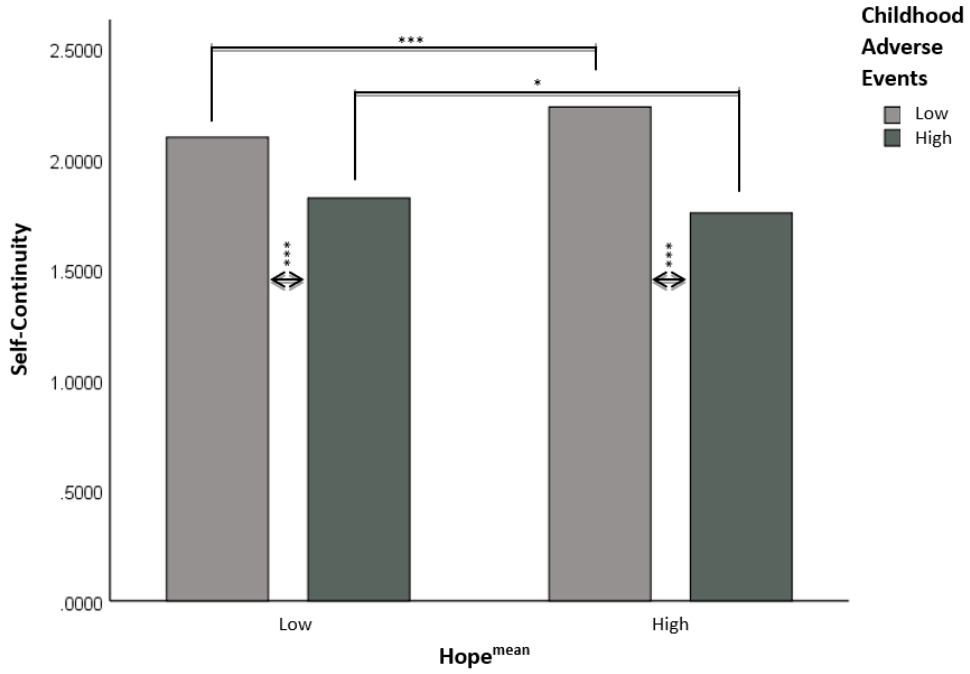

Figure 2.4 Mean levels of self-continuity (fixed predicted values) illustrating the significant interaction between hope (group-mean centered) and childhood adverse events (group-mean centered) for divorcees (n = 403). *Note:* * $p < .05$; *** $p < .001$.

For the divorced, but also for the widowed individuals, those who had experienced less adversity in their childhood had significantly higher levels of self-continuity than those with more adversity during their childhood, regardless of their level of hope (divorcees: B = -.21, p < .05, Figure 2.4; widowers: B = -.21, p < .05; Figure 2.5). In addition, more hopeful individuals had higher levels of self-continuity compared to less hopeful ones, in both divorced and widowed groups, however this was not the case for divorcees having experienced high childhood adversity, for whom being less hopeful was related to higher levels of self-continuity. Regarding the married reference group, more hopeful individuals had a higher increase in self-continuity as they grew older than less hopeful ones (B = -.05, p < .01, Figure 2.6).

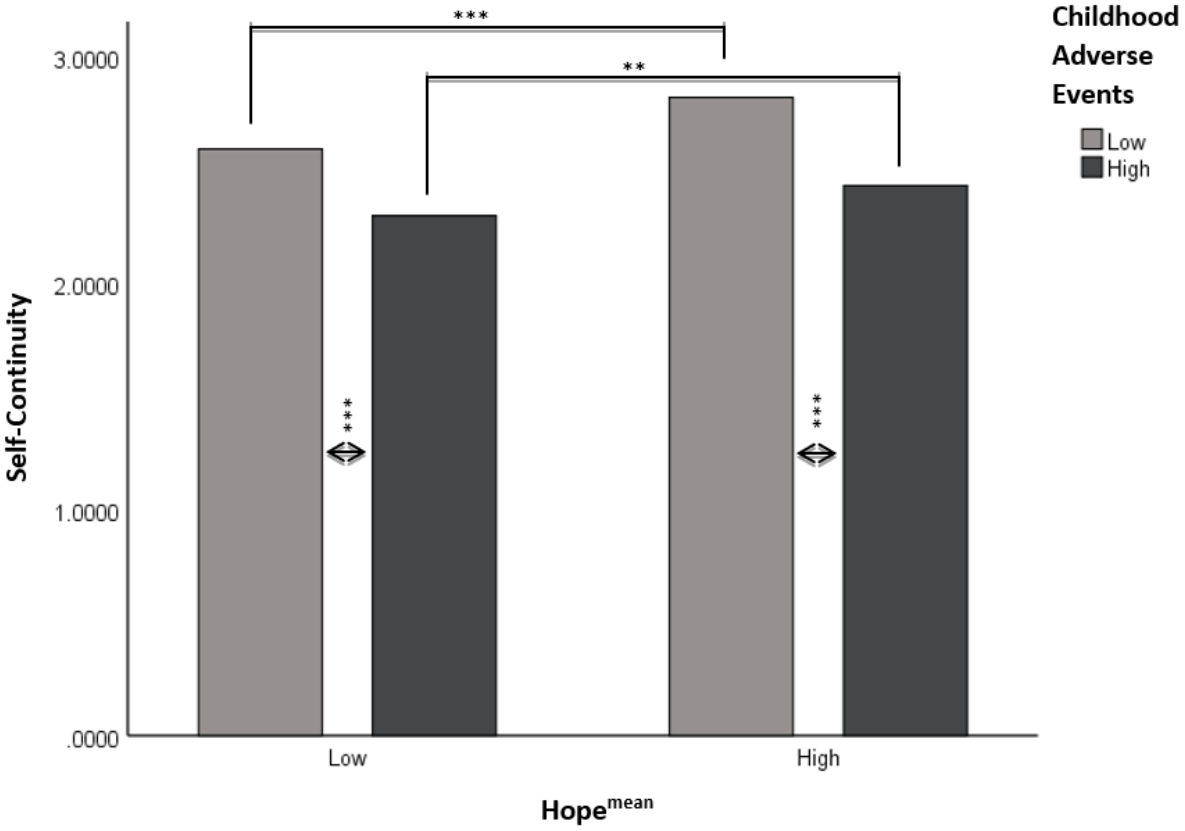

Figure 2.5 Mean levels of self-continuity (fixed predicted values) illustrating the significant interaction between hope (group-mean centered) and childhood adverse events (group-mean centered) for widowers (n = 296). *Note:* ** p < .01; *** p < .001.

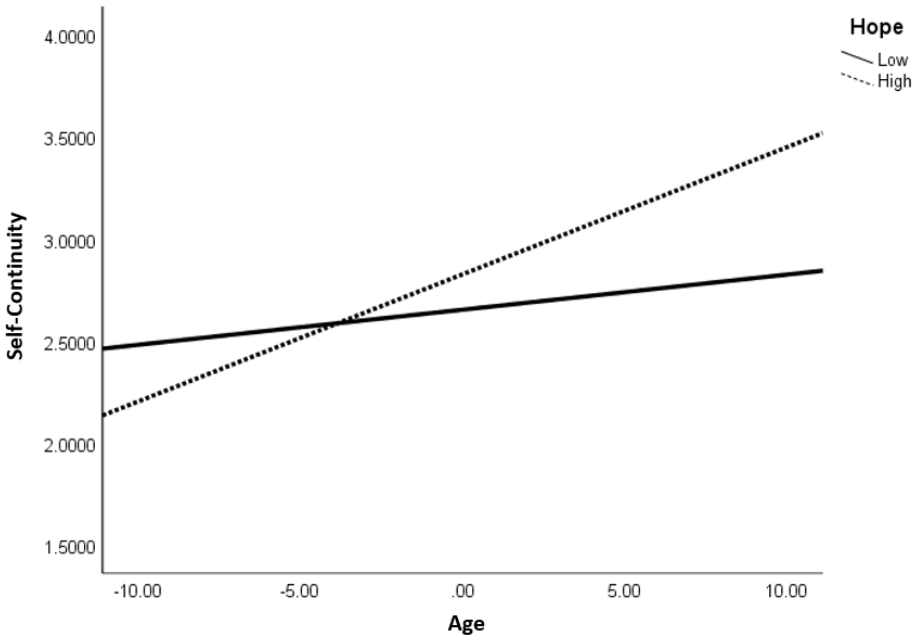

Figure 2.6 Mean levels of self-continuity (fixed predicted values) illustrating the significant interaction between age (person-mean centered) and hope (group-mean centered) for married individuals (n = 535).

The random intercepts varied significantly across groups (divorcees: B = .84, p < .001; widowed: B = .67, p < .001; married: B = .61, p < .001), suggesting that there was significant variability between individuals to be explained regarding self-continuity. Furthermore, the random effects showed a significant variation in slopes with regard to age across all groups (divorced: B = .05, p < .001; widowed: B = .04, p < .001; married: B = .03, p < .001). The covariances between the slopes of age and the intercepts of self-continuity were negative and significant for the divorced (B = -.05, p < .01) and widowed individuals (B = -.04, p < .01), and marginal for the married ones (B = -.02, p = .06). These results indicated that individuals with higher average levels of self-continuity experienced a slower increase in self-continuity levels as they grew older (i.e., less steep slopes). The within-subjects' random variance was significant in all groups (divorcees: B = .23, p < .001; widowed: B = .19, p < .001; married: B = .14, p < .001), indicating that individuals varied across measurement points with regard to their average level of self-continuity.

The final and most parsimonious model in the divorcees explained 6% and 50% of the within-subjects' and between-subjects' variance, respectively. For the widowed, the model explained 13% of the within-subject's and 47% of the between-subject's variance. Lastly, in the final model for the married individuals, 10% of the total within-subjects' variance and 48% of the total between-subject's variance was explained by the predictors.

2.4 Discussion

This study investigated the relation of distal and proximal predictors of later-life self-continuity, for divorced and widowed individuals, using a married group as reference, and contributes to the existing literature regarding self-continuity with the following findings: As people grow older, self-continuity increases regardless of having experienced the loss of an intimate partner in later life. The comparison with the between-subjects effects indicates that apart from the beneficial effect of age on self-continuity, individuals who were older than the population average age they felt more self-continuity than their younger counterparts. However, self-continuity levels were found to differ between individuals having experienced high vs low childhood adversity, with adversity being associated with lower levels of self-continuity. Notably, distal adverse events had a stronger effect on self-continuity in the second half of life than more proximal event-related factors. Lastly, being more hopeful was beneficial for self-continuity across all groups, both regarding change and level.

2.4.1 Aging and Self-Continuity

Across both the divorced and widowed groups, but also in the married, as individuals grew older their levels of self-continuity increased significantly, confirming our first hypothesis. In addition, individuals who were older than the average age of the population of their group (e.g. older than the average age of the widowers) also had higher levels of self-

continuity. These findings are in line with previous research on the relationship between age and self-continuity (Rutt & Löckenhoff, 2016b). However, this paper adds to the existing literature by investigating this relationship with longitudinal data, by addressing this question with within-subjects and between subjects' effects, and by exploring the concurrent effect of stressors and resources on self-continuity. In addition, we were interested in the rate of change in self-continuity as individuals grew older: Divorcees and widowers who felt more continuity than the average experienced a smaller increase in their self-continuity levels as they grew older. Therefore, the individuals who on average had lower levels of self-continuity were the ones that benefitted most when they aged, as the increase was greater.

2.4.2 Childhood Adversity Relates to Lower Self-Continuity in Later Life

Confirming our second hypothesis regarding the effect of childhood adversity on self-continuity in later life, divorcees, widowed and married individuals who had been confronted with more adverse events during childhood reported lower levels of self-continuity in later life. This is in line with Turner and Lloyd's (1995) work, indicating that early lifetime traumas have a negative influence on well-being in adult life. These findings add to the existing literature by pointing out the effect of specific distal predictors on later-life identity mechanisms such as self-continuity. According to Cohler's (1982) theory, continuity and stability are related to one's personal interpretation of one's life story rather than the actual occurrence of specific events. However, our findings specifically highlight the undoubtable negative perception of childhood adverse events and how they influence self-continuity across the life course. Childhood events may thus create latent vulnerability, which, according to the definition by Spini and colleagues (2017), influences well-being for a prolonged period of time. To our knowledge, this is the first study investigating the influence of distal adversity on identity processes as well as later-life critical events, while considering resource availability (e.g., education, new partner).

Apart from the main effect of childhood adverse events on self-continuity, this paper investigated whether the effect of age on self-continuity changed when individuals had experienced more childhood adversity. Divorcees with less negative childhood events had a stronger increase in self-continuity as they grew older than others who had experienced more childhood adversity. These findings indicate that the "normative" age increase of self-continuity is affected by childhood adversity for the divorcees. However, this interaction was not observed in the other two marital groups. Divorce may be a particular life event, which more than widowhood, threatens the already vulnerable identity by childhood adversity, preventing the individual from having a more solid identity structure in later life.

For the divorced and the widowed group, when compared to high adversity, less adversity in childhood was related to significantly higher levels of self-continuity, in both highly and less hopeful individuals, confirming our second hypothesis. These findings show that having a positive outlook in life is related to stronger feelings of self-continuity in later life, especially for those with no or little adversity in childhood. Additionally, as these findings were observed only for those having lost their partner through divorce or bereavement, hope seems to be an important resource for self-continuity in later life despite of partner loss.

2.4.3 Time Since Loss is Linked to Higher Self-Continuity

The only proximal critical life event-related predictor that explained inter-individual differences in self-continuity was time since partner loss. Initiator status for divorcees or difficult bereavement for widowers had noticeably no significant effect on self-continuity. Individuals who had a greater time distance since the event, regardless of whether it was the dissolution of marriage or the death of the partner, felt more self-continuity in comparison to those closer to the event. These findings are in line with previous research (Booth & Amato, 1991; Lampraki et al., 2019) showing that a greater distance from divorce or separation was

associated to higher levels of well-being. These findings add to the literature regarding adaptation to critical life events in later life as with passing time, apart from higher levels of well-being, individuals obtain higher levels of self-continuity.

All other event-related variables did not explain any variance in self-continuity. The absence of effects may indicate that distal predictors, such as adverse childhood events, explain later-life self-continuity than more proximal ones. As identity, and more specifically self-continuity, is constructed and shaped earlier in life (Erikson, 1968), facing adversity at this life-stage can weaken sustainably the self and have detrimental effects for the sense of continuity throughout adult life.

2.4.4 Forming a New Partnership Was Not Related to Higher Self-Continuity

Despite our expectations that having a new partner would act as a resource for self-continuity, we did not observe this effect for neither the divorced nor the widowed individuals. These findings indicate that forming a new partnership, even if the person re-gains the role of the partner, does not reinforce the feeling of self-continuity. These findings indicate that in later life, after the loss of a long-term partner, individuals that re-partner may not consider the new relationship as a way to maintain the lost role of the spouse and therefore regain continuity for the self. A new partner seems to mean a new story. To our knowledge this is the first study to show that self-continuity appears to be more strongly impacted by early critical life events across the life course than by the availability of resources. Future studies should try to replicate these results.

2.4.5 Higher Education Related to Less Self-Continuity

Despite our expectations that education would act as a resource for self-continuity we found that less educated individuals, regardless of their marital status, felt more continuity than well-educated ones. One may assume that higher education offers more opportunities

and more choices in life, such as work mobility, which in turn leads to more life changes. Therefore, the discrepancy between who a person was earlier in life and who they are now to be greater for highly educated individuals, enforcing the perception of discontinuity of self.

2.4.6 Hopeful Individuals Experience More Self-Continuity

Hopeful widowed and married individuals experienced more self-continuity, while in the divorcees or separated this main effect was not observed. However, the interaction effect between hope and childhood adversity was related to differences in self-continuity levels for the divorcees, suggesting that divorcees with fewer childhood events and high levels of hope were the main beneficiaries in terms of self-continuity. These findings are in line with Frazier and Hooker (2006, see also Markus & Nurius, 1986) who suggested that positive self-projections help in setting goals and maintaining a positive sense of self throughout the life course. This study contributes to the existing knowledge regarding the positive effects of having an optimistic outlook of life on continuity by investigating how critical life events and adversity may influence this relationship in later-life.

More hopeful married individuals experienced higher levels of self-continuity as they aged compared to those with a more pessimist outlook in life. These results also indicate that positive life attitudes and future expectations may relate to a less fragile identity and to higher self-continuity in later life. A positive life attitude can be considered as a resource that is beneficial for self-continuity, even for married individuals who have not experienced a marital status change in later life.

2.4.7 Limitations

Although this paper contributes to the understanding of self-continuity in later life, there are some limitations that are worth mentioning. Despite having been able to longitudinally follow changes in self-continuity after partner loss, only a subgroup of

participants lost their partner during the study period. Thus, we were not been able to investigate whether divorcees or widowers return to their pre-loss levels of self-continuity and when. Another limitation of this study is that we do not have a life-span sample which would help in addressing the question of whether predictors of self-continuity change by age group, as other events, such as the development of chronic illnesses may also have an impact on identity. Lastly, given that the divorcees were on average slightly younger than the widowers, differential findings on predictive patterns regarding the effect of age on levels of self-continuity in the two groups have to be considered with caution, as they might belong to different age cohorts.

2.4.8 Conclusions

In conclusion, self-continuity increases as individuals grow older. However, adversity in childhood and adolescence appears to be related to more fragile identity mechanisms in later-life. Early life adversity and related traumas have a long-lasting influence on people experiencing partner loss in the second half of life, but also for the married individuals. Addressing childhood traumas is of high importance as they lead to life-long vulnerability with respect to self-continuity and identity development. In addition, having an optimistic outlook in life also relates to higher self-continuity. Lastly, when considering how self-continuity may be reinforced, mental health professionals should address not only recent relationship-related issues, but also childhood traumas and, in addition, help individuals imagine a more positive future.

Table 2.5 Key Messages of Chapter 2

- Self-continuity increases with age, however, divorcees and widow(er)s feel less continuous than their married counterparts across time.

- Individuals with less childhood adverse events have a stronger sense of self-continuity in later life.
- Having an optimistic outlook towards life helps in maintaining and/or increasing self-continuity in later life.
- Forming a new romantic relationship after the loss of the partner does not enhance self-continuity.
- Less educated individuals have a stronger sense of self-continuity.

3 Social Loneliness after Divorce: Time-Dependent Differential Benefits of Personality, Multiple Important Group Memberships, and Self-Continuity[3]

Abstract

Background: Critical events in the second half of life, such as divorce, pose a significant threat to well-being. Individuals undergoing divorce often experience feelings of social loneliness and may benefit differently from available resources depending on how much time has passed since the event. Personality traits have been found to be related to adaptation, with particularly strong effects immediately after the critical event. Other resources, such as identity-stabilizing mechanisms (i.e., valued social groups and self-continuity), may play a role only later in adaptation. However, little is known about the benefits of these resources and their potentially time-dependent effects on social loneliness when one is overcoming later-life divorce.

Objectives: This study investigates the role of psychological (e.g., personality, self-continuity, multiple important group memberships) and social resources (e.g., new partner, having someone to help deal with divorce), for social loneliness in two post-divorce phases, using a married group as reference, controlling for sociodemographic aspects and health.

Methods: A representative sample of 850 divorced (aged 40-79) and 869 married individuals (aged 40-78) living in Switzerland were compared, using multiple regression analyses.

[3] Lampraki, C., Jopp, D. S., Spini, D., & Morselli, D. (2019). Social loneliness after divorce: time-dependent differential benefits of personality, multiple important group memberships, and self-continuity. *Gerontology, 65*, 275–287. doi:10.1159/000494112

Results: Differential predictive patterns for social loneliness among the two divorced groups and the married were observed. For the short-term divorced (up to 2 years after divorce), higher extroversion and agreeableness and lower neuroticism were associated with lower levels of loneliness. For the long-term divorced (2-5 years after divorce) and for those who remained married, extroversion was similarly important for loneliness. Additionally, higher levels of self-continuity and multiple group memberships predicted lower loneliness, but the short-term divorced did not benefit from them. Having someone to help overcome the divorce benefited members of both divorced groups. A new partner was related to less loneliness but only in the long-term divorced group.

Conclusion: Findings demonstrate that the effects of psychological and social resources on social loneliness vary by adaptation phase. Although extroversion is beneficial for all divorced and married individuals, other personality traits play a more decisive role in the initial adaptation phase. Identity-promoting resources (i.e., multiple group memberships, perceived self-continuity) are beneficial only later in the adaptation process. To be successful, professional interventions must be tailored as needed.

Keywords: social groups, identity, divorce phases, adaptation

3.1 Introduction

Losing one's spouse through divorce represents an important critical life event and its frequency is rising among older adults (Brown & Lin, 2012). Social loneliness can be one of the negative consequences of divorce (Dykstra & de Jong Gierveld, 2004), increasing the chances of outcomes such as poorer health and higher mortality (Ong, Uchino, & Wethington, 2016). Although time heals some wounds and many divorcees can accept their new realities and recover their pre-divorce levels of well-being (Amato, 2000; Pudrovska & Carr, 2008), not everyone can adapt to and accept the changes (e.g., personal, social) that divorce may impose on their lives, often leading to prolonged feelings of social loneliness (Perrig-Chiello, Hutchison, & Morselli, 2015). Adaptation refers to regaining the level of well-being that one had before the occurrence of the critical life event (Lucas, 2007). Investigation of the factors that may affect the adaptation process is of great importance to identify why some individuals remain vulnerable while others successfully overcome divorce and move on with their lives.

When people face dissolution of marriage at a later point in their lives, coming to terms and coping with divorce may be particularly challenging. For example, many of them had for much of their lives a social identity of husband or wife. Finding a new partner may also become more difficult. As only a few studies have addressed divorce in the second half of life (Perrig-Chiello et al., 2015), not much evidence exists about predictors that help in adaptation to divorce at that age. Divorcees may also experience various post-divorce phases during which, depending on the time passed since this critical life event, specific resources may be particularly beneficial for adaptation. According to Amato's (2000) divorce-stress-adjustment model, divorce is a three-phase process. It starts with separation and/or dissolution of marriage; followed by a first post-divorce adaptation period, which lasts about two years and is primarily characterized by distress; and the final adaptation phase, during which the individual no longer feels divorce-related distress and returns to pre-divorce levels of well-

being. Empirical evidence for these specific adaptation phases (i.e., less than two years vs more than two years since divorce) has been found in several longitudinal studies that examined adaptation to partner loss either through divorce (Booth & Amato, 1991; Lucas, 2005) or bereavement (Bonanno et al., 2002; Pudrovska & Carr, 2008). Following this model, it is likely that specific factors are responsible for coping in the various post-divorce phases. Although some resources may be beneficial regardless of divorce phase (e.g., social resources), other resources (e.g., identity-enhancing mechanisms) may be differentially important during these post-divorce phases. In the acute adaptation phase after divorce, well-established cognitive and behavioral tendencies may regulate how the individual adapts while staying busy reorganizing urgent practical aspects to ensure that everyday life continues as well as possible. After sorting out immediate pressing issues, the individual may have more time and energy in the later adaptation phase to consider divorce-related changes more broadly, including reevaluating one's identity and integrating aspects of the new situation into the self. Yet specific adaptation resources' time-dependency has received little attention. This study aims at addressing these research gaps by investigating how various psychological and social resources relate to social loneliness as indicators of successful adaptation to divorce in later life and whether their usefulness varies across post-divorce adaptation phases.

3.1.1 Later-Life Divorce and Loneliness

Divorce in advanced age represents a new phenomenon associated with recent demographic changes (Brown & Lin, 2012). Individuals in the second half of life experience divorce as a highly distressing event and as a crisis that is "off-time" even if the divorce is a voluntary dissolution of marriage (Pudrovska & Carr, 2008). Additionally, divorce often leads to the disruption of social relationships, as friends of the formerly married couple usually tend to feel closer to one of the partners and choose sides (Terhell, 2004). The resulting shift in

social networks contributes to the feeling of distress that is common among divorcees (Booth & Amato, 1991; Pudrovska & Carr, 2008). In later life, the distress may become even greater as it is more challenging for older individuals to find new social partners. Although research has mainly focused on dissolution of marriage at younger ages, the limited findings on late-life divorce indicate poorer adjustment compared to that of younger individuals (Wang & Amato, 2000), suggesting that divorce is a more stressful or a more difficult experience to cope with in older age.

Many individuals who go through divorce feel lonely. Although long-term married individuals can also experience social loneliness (Amato, 2000) and a decreasing social network over time (Kalmijn & van Groenou, 2005), divorcees have been found to be more prone to social loneliness, particularly due to disruptions of social relationships associated with divorce (Widmer, Aeby, & De Carlo, 2012). Research has shown that feelings of loneliness in the second half of life remain relatively stable or even diminish in advanced age, and they are not caused by isolation but by being unable to meet one's need for socializing with valued partners (Shute & Howitt, 1990; Tesch-Römer, Wiest, Wurm, & Huxhold 2013). However, the empirical evidence is still inconclusive regarding loneliness in the context of critical life events in the second half of life, such as divorce (Antonucci, Ajrouch, & Birditt, 2013; Dykstra, 2009). When people grow older, their social circles are likely to diminish due to loss of loved ones and other social partners; also, health and mobility issues contribute to the reduction of social contacts (Antonucci et al., 2013). However, it is not only the quantity of social contacts that affects social loneliness but also their quality (Pinquart & Sorensen, 2001). Therefore, individuals may have fewer social partners with advancing age, but the remaining relations may be of higher quality (Antonucci et al., 2013). In the context of divorce, losing valued social partners and the inability to replace them with others of equal importance can have long-term consequences regarding social embeddedness and well-being

in later life. In his theory of loneliness, Weiss (1973) suggested that social loneliness is experienced when individuals lack an engaging social environment, for instance when they have only limited and unsatisfying contact with family, friends, or community members. Therefore, dissolution of marriage in the second half of life can result in additional loss of important social partners (Widmer et al., 2012), leading more generally to maladaptation to divorce and, more specifically, to greater social loneliness.

3.1.2 Factors Related to Post-Divorce Loneliness

Investigation of factors related to loneliness is important, as lonely individuals have substantial mental and physical health risks ranging from depression to premature mortality (Alpass & Neville, 2003; Routasalo, Savikko, Tilvis, Strandberg, & Pitkälä, 2006). Specifically, individuals experiencing marital instability, those with unsupportive social networks (de Jong Gierveld, Broese van Groenou, Hoogendoorn, & Smit, 2009), those without children, and most specifically women (Amato, 2000) are at risk of feeling socially lonely, underscoring the importance of social resources. In countries with strong societal norms, such as in Switzerland, gender is an important factor to consider, as the dissolution of marriage is more challenging for women than for men (Struffolino, Bernardi, & Voorpostel, 2016). Women are encouraged to reduce their employment rates or stop any work activity after marriage or motherhood, leading to poorer financial and social resources. Thus, in Switzerland and other conservative societies, the re-partnering rate is higher than in other countries, such as the United States of America or Germany (Vaus, Gray, Qu, & Stanton, 2017), as being divorced may come with greater financial and social challenges. Finding a new partner may be an essential part of overcoming the divorce, as it can protect against social loneliness (Amato, 2000) but also against financial and societal strains. However, re-partnering in later life may be a challenge for some individuals. In divorce, other social

partners, such as children or close friends, can provide more readily available social support. Hence, we hypothesize (H1) that, among both divorced groups, having a new partner, children and someone helping to overcome divorce will be related to a lower level of social loneliness.

Besides social aspects, psychological resources, such as personality, also play a role in adaptation to divorce. Personality traits influence how individuals cope with critical life events (Caspi & Moffitt, 1993), and they are responsible for how a person engages in social life (Bleidorn, Hopwood, & Lucas, 2018), influencing post-divorce loneliness levels. More neurotic individuals tend to experience emotional instability and relational deficits (Saklofske & Yackulic, 1989). Higher levels of neuroticism are then likely to lead to more emotional vulnerability, unsatisfied needs for socialization and social loneliness. Individuals who are more extroverted and more agreeable feel less socially lonely, as for them, it is easier to approach compatible social partners and create meaningful relationships (Bleidorn et al., 2018). Being conscientious entails some personal qualities that are appreciated and valued by others, such as being hard-working, reliable and self-disciplined (David & Suls, 1999), making conscientious individuals more likely to be surrounded by social partners or embedded in groups. Finally, being more open to new experiences offers more possibilities to meet new people (Bleidorn et al., 2018) and therefore to satisfy the need for social connectedness. Regarding personality and divorce, middle-aged women undergoing divorce showed higher adaptability when they had higher levels of extroversion and openness and low levels of neuroticism (Pudrovska & Carr, 2008). Besides being linked to enhanced coping with critical events, extroversion and neuroticism have also been found to relate to lower social loneliness in the general population (Saklofske & Yackulic, 1989). Regarding personality, we therefore expect (H2) that higher extroversion, openness, agreeableness and conscientiousness as well as lower neuroticism will relate to lower social loneliness.

Other psychological resources, such as identity mechanisms, may promote adaptation to critical events. Continuity theory suggests that during life changes, the person seeks to maintain or protect a sense of identity (Atchley, 1989). To do so, individuals engage in cognitive strategies to experience continuity, remembering persistent inner-psychological aspects (e.g., lasting ideas, preferences, expectations; self-continuity) and continuous social-environmental aspects (e.g., activities and roles; social-continuity; Atchley, 1989). Experiencing high self-continuity has been found to contribute to adaptation after critical life events (Bluck & Alea, 2008), and may therefore prove similarly important in the context of divorce. Divorce may raise identity questions such as, "Who am I now?" or, "Am I the same person as before the divorce?" Chandler and Proulx (2008) suggest that self-continuity enables individuals to connect the various pieces of their past, present and future into a coherent story that reflects a sense of identity stability. As being a spouse represents a central element of many older adults' self-definitions for many older adults, particularly when favoring traditional life forms as is common in Switzerland (Bodenmann et al., 2006), the need for self-continuity in divorce can be high. Feeling like the same person as before the divorce may be important for maintaining a clear sense of who one is, which represents a central prerequisite for social interactions and, specifically, for the development and the maintenance of a supportive social network of family and friends. Hence, in line with this reasoning, we hypothesize that (H3) high perceived self-continuity contributes to feeling less social loneliness after divorce.

Individuals who interact with familiar people and groups, and engage in well-known environments (Atchley, 1989) are more likely to perceive social continuity, the second cognitive mechanism proposed by continuity theory. Perceived memberships in important social groups is a psychological resource that reflects social continuity and is associated with various positive factors, such as well-being, health promotion, and mental and physical health

(Atchley, 1989; Jetten, Haslam, & Haslam, 2012). Additionally, perceived membership in important social groups has been found to lead to positive outcomes such as well-being over and above social interactions outside of valued social groups (Haslam, Cruwys, & Haslam, 2014). Although belonging to such groups may also encourage social engagement, facilitate shared social activities and provide the individual with access to multiple social partners who could provide support, being a member of valued social groups may also provide the "space" for individuals to create positive social identities and "merge" them into their sense of self (Haslam et al. 2008). According to the social cure theory (Haslam et al. 2008), it is not the activities and tasks performed in the context of the group that strengthen social identity in times of transitions but the symbolic relationship with that group of high value. People tend to assimilate the characteristics of social groups that are important to them (e.g., religious beliefs). These valued social groups act as anchors for identity and may have particular beneficial effects in times of life transitions, such as divorce, during which individuals lose their (potentially valuable) self-definition of being a wife or a husband. Therefore, in contrast to other non-important social groups, the important groups may allow people to experience parts of their social identities as stable and feel socially embedded, despite divorce-related changes. We hypothesize that (H4) more important group memberships will relate to feeling less socially lonely in divorced individuals, but that having valued social groups, given their nature, will also benefit married individuals.

Last, as these two mechanisms promote identity stability (Spini & Jopp, 2014), feeling more continuity of self and having more valued social groups may indicate a specific resilient profile of less lonely divorcees. Additionally, the excess in one of the mechanisms may compensate for a lack in the other one (H5). For instance, one may not feel like the same person as before the divorce, but by being embedded in many social groups, one may feel less lonely. However, the concurrent absence of valued social groups and self-continuity may

suggest higher loneliness in the divorcees, as they cannot benefit from any of the two identity mechanisms. Lack of valued social groups and self-continuity, may, in addition, be a risk factor for married individuals in terms of loneliness.

3.1.3 What Helps When?

Depending on the adaptation phase, different factors may facilitate the process of coping with divorce (Knöpfli, Morselli, & Perrig-Chiello, 2016; Perrig-Chiello et al., 2015). Personality aspects, for instance, may be of utmost importance during early phases of adaptation, and having social resources in any adverse circumstances has been found to be beneficial for mental health (Amato, 2000; de Jong Gierveld et al., 2009).

Caspi and Moffit (1993) suggest that in new and ambiguous situations, the individual seems more likely to rely on well-established cognitive and behavioral tendencies captured by personality traits. High stress levels may emerge more often during the initial adaptation phase, as divorcees have to deal with immediate and pressing demands regarding their novel life conditions, yet they do not know how (Caspi & Moffitt, 1993). As the individual tries to cope with the new reality, automatic and well-known behavioral tendencies may emerge more frequently, rather than the person employing more cognitively demanding processes that require excessive mental energy. For instance, more neurotic divorcees more often may reject social interactions, which will not satisfy their need for relatedness with others and will increase the feelings of social loneliness. An extrovert may, instead, interact more often with others in that phase, with an immediate positive effect in return. Nevertheless, the social support associated with the bonds created in this interaction may become beneficial at a later stage, as time is needed to develop supportive relationships.

Therefore, the more prototypical personality-associated behavior will not only be more frequent; its explanatory value may be accentuated under more challenging times, such

as those closer to divorce, but the benefits of other factors, such as social participation, may become more pronounced later (Caspi & Moffitt, 1993). These trait-related behaviors and cognitions may be more strongly associated with well-being than other available resources, particularly when the person is still in the acute stress phase following the event, when struggling with adaptation is more likely. Findings are, however, still inconclusive regarding which specific personality traits may be accentuated in divorce (Bleidorn et al., 2018). Hence, aiming to close this research gap, we extend the more specific hypothesis that personality plays a role in adaptation (H2), by assuming time dependence of this effect: we expect that (H2a) when people are closer to divorce, high levels of neuroticism, and lower levels of extroversion, agreeableness, openness and conscientiousness will be related to high levels of social loneliness, following previous research on the association of specific personality traits and loneliness (Bleidorn et al., 2018; David & Suls, 1999; Saklofske & Yackulic, 1989).

After the initial stressful phase and when individuals have dealt with the actual and emotional loss of the partner and the immediate consequences of divorce (e.g., financial), they may be ready to advance to the next phase of adaptation. In this later phase, divorcees may work on restructuring their social lives and identities. Therefore, psychological resources such as self-continuity, representing inner-psychological continuity, and membership in valued social groups representing social-continuity may become more important for adaptation. Although individual-based interactions may be beneficial regardless of adaptation phase, as they are more direct in nature and easier to achieve, social groups may require a certain level of connectedness with other group members, which is accomplished with time. For self-continuity, adaptation time is very relevant, as individuals may need time to determine whether divorce was a truly disruptive event, and whether they may ever accept it as part of who they are. Hence, it is likely that (H3a) self-continuity and (H4a) important social group memberships, as well as their (H5a) interaction, may explain more variance in

social loneliness at a later stage, helping individuals return to pre-divorce levels of social loneliness that more closely resemble those of the married participants (H6; Booth & Amato, 1991; Lucas, 2007). To our knowledge, the beneficial effects of multiple important group memberships and self-continuity on well-being outcomes have not yet been investigated in the context of divorce.

3.1.4 The Present Study

This study investigates the importance of psychological and social resources for adaptation to divorce, as indicated by the experience of social loneliness. As time since divorce is associated with adaptation progress (Lucas, 2005), we compared (a) individuals who were in an earlier post-divorce phase, coping with the new reality after divorce (short-term group), (b) individuals who were in a later post-divorce phase when adaptation should have advanced (long-term group) and (c) married individuals who had never experienced a divorce, serving as a control group. In particular, we examine the role of social resources (H1: i.e., having children, a new partner, or someone to help deal with the divorce is related to lower social loneliness in divorce), personality (H2 and H2a: e.g., higher neuroticism in the short-term divorced is related to more loneliness) and identity-promoting mechanisms (H3 and H3a; H4 and H4a: e.g., higher self-continuity and more important group memberships are associated with less social loneliness for the long-term divorced; H5 and H5a: e.g., excess in one of the mechanisms may compensate for a lack in the other one) for social loneliness, expecting differential predictive patterns across groups (H6: i.e., outcomes for the long-term divorced will resemble those of the married) while controlling for subjective health and socio-demographic aspects (i.e., age, gender, financial status) that have been found to be associated with adaptation to divorce in prior studies.

3.2 Methods

3.2.1 Sample and Procedure

The present study included a total of 1719 individuals aged 40 to 92 years who were either married (and had never been divorced) or had been divorced or separated within the past 5 years. The sample was stratified by age, gender and marital status. Participants were selected by the Federal Office of Statistics (for details, see Perrig-Chiello & Margelisch, 2015). Divorced and separated individuals were combined into one group ("divorced") in line with previous research (Pudrovska & Carr, 2008). These 850 (40-79 years old) divorced individuals were split into two subgroups according to adaptation phases: The short-term divorced group (n = 425) consisted of individuals who had experienced divorce up to 2 years (M = 1.2) prior to study participation. The long-term divorced group (n = 425) consisted of individuals who had experienced divorce 2 to 5 (M = 4.0) years prior to study participation. We compared the divorced groups with an age-matched group of married people (n = 869, M = 24.0) who had never experienced a divorce.

3.2.2 Measures

The participants filled out a paper-and-pencil or online questionnaire, including the measures described below, and they received no compensation.

Grouping variable. To separate married, short-term and long-term divorced individuals, participants indicated whether they had ever experienced separation or divorce and when this had happened. Years since the divorce were then calculated to create the following categories: 0 = *married*, 1 = *up to 2 years after the event*, 2 = *2-5 years since the event*. The 2-year cutoff was used based on the findings regarding adaptation to divorce by Booth and Amato (1991) and Lucas (2005).

Outcome. *Social loneliness* was measured using the corresponding items of the short De Jong Gierveld Loneliness Scale (de Jong-Gierveld & Kamphuis, 1985). It consists of three items (i.e., "There are plenty of people with whom I feel closely connected," "There are enough people on whom I can rely in case of problems," and "I know many people on whom I can depend"), that were answered on a 5-point scale (1 = *no*, 2 = *rather no*, 3 = *more or less*, 4 = *rather yes*, 5 = *yes*). A mean score was built to represent social loneliness, with higher values indicating higher loneliness (Cronbach's α = .86).

Independent variables. Independent variables included demographic variables, health, social resources, personality, multiple important group memberships and perceived self-continuity. Demographic variables included respondents' *age* and *gender*, as well as *income adequacy* (1 = *I do not have enough money to support myself*, to 3 = *I have more than enough money to support myself*). *Subjective health* was assessed with one item asking for the current health status (1 = *very bad* to 5 = *very good*). The availability of social resources was measured with three single items: *children yes/no* ("Do you have common children/adopted children with your [ex-]partner?"; 1 = *yes*, 0 = *no*), *new partner* ("Are you currently in a relationship?"; 1 = *yes*, 0 = *no*; applies to divorcees only) and *someone to count on* ("Were you able to count on the help of someone to deal with the separation/divorce better?"; 1 = *yes*, 0 = *no*; applies to divorcees only).

Personality traits were measured with the short version of the Big Five Inventory (BFI-10; Rammstedt & John, 2007). Items were evaluated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*), and responses were combined into a mean score for each personality trait: *neuroticism, extroversion, conscientiousness, openness* and *agreeableness* (see Perrig-Chiello et al., 2015). Higher scores indicate higher levels of personality traits.

Multiple important group memberships and self-continuity were measured with the Exeter Identity Transitions Scales (Haslam et al. 2008). Individuals were asked to report up to

six different social groups that they belonged to and to rate how important these groups were to them using a 5-point scale (1 = *not important* to 5 = *very important*). A *multiple important group membership (MIGM)* sum score was calculated, using only the groups that were rated as important (4) or very important (5), with higher values indicating a higher number of valued social groups. Although previously Jetten and colleagues (2015) created an indicator for MIGM by multiplying average importance with the number of groups mentioned, for the present paper we used specifically those groups evaluated as important or very important to ensure that this construct reflected membership in highly valued groups only. *Self-continuity* was measured with the following three items: "I am the same person as I always was," "With time lot of things have changed, but I'm still the same person," and "I'm a different person than I was in the past." These items were evaluated on a 5-point scale (1 = *does not apply to me at all* to 5 = *fully applies to me*). The mean score of the three items was computed, with higher values indicating higher perceived self-continuity (Cronbach's α = .82).

3.2.3 Analytical Strategy

We conducted between-groups analyses of variance (ANOVA) with Scheffe's post-hoc tests to examine mean-level differences among married and divorced (short-term vs long-term divorced) groups for social loneliness and its predictors. Regression analyses were then conducted separately for each of the three groups using demographic variables, health, social resources, personality, self-continuity, MIGM and the interaction between self-continuity and MIGM as predictors, and social loneliness as the outcome. Data were examined for univariate and multivariate outliers and multicollinearity. Bootstrapping was used to test the robustness of the models.

In order to test whether the standardized regression coefficients, examined in separate analyses, were significantly different across groups and, therefore, confirm our theoretical

assumptions about differences and similarities between the divorced groups and the married control group, we conducted follow-up regression analyses with the whole sample to test interaction effects (i.e., group indicator x centered predictor; Aiken, West, & Reno, 1991). For the interpretation of the results, we used standardized coefficients (β), F values and R^2 values. All statistical analyses were conducted with SPSS, version 23.

3.3 Results

3.3.1 Descriptive Statistics

Mean levels and standard deviations are presented in Table 2.1. Divorced individuals felt more lonely than married individuals, regardless of the time passed since divorce (short-term divorced: M = 1.22; long-term divorced: M = 1.19; married: M = .89; F (2, 1708) = 20.95, p < .001). Long-term divorced individuals had the lowest score on MIGM (short-term divorced: M = 1.44; long-term divorced: M = 0.93; married: M = 1.15; F (2,1716) = 14.66, p < .001). In terms of self-continuity, the three groups were significantly different from each other, with the married having the highest and short-term divorced the lowest levels (short-term divorced: M = 1.78; long-term divorced: M = 2.11; married: M = 2.66; F (2, 1704) = 108.34, p < .001).

The correlational analyses (Tables 2.2 and 2.3) revealed moderate associations in the expected directions. Expected correlations with loneliness were found for the short- and long-term divorced groups (e.g., for short-term divorced: social loneliness with neuroticism r = .33***; for long-term divorced: social loneliness with MIGM r = -.22***). However, age and children in both groups, and gender, conscientiousness and self-continuity only in the short-term divorced group, were not significantly associated with loneliness. Furthermore, for the married individuals, greater social loneliness was significantly negatively associated with all other variables, except for neuroticism, for which the association was positive.

Table 3.1 Descriptive Statistics of Central Study Variables, Split by Study Groups, and Mean Level or Frequency Difference Test (N =1719)

	Short-term divorced (n = 425)		Long-term divorced (n = 425)		Married (n = 869)		Difference Test
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*
Age	52.33[b]	8.07	52.89[b]	7.88	59.55[a]	11.29	108.18***
Income Adequacy	1.95[b]	0.51	1.93[b]	0.50	2.10[a]	0.47	22.22***
Subjective Health	3.87	0.92	3.98	0.81	3.97	0.72	2.16
Neuroticism	2.69	0.99	2.66	0.92	2.71	0.92	0.43
Extraversion	3.40[a]	1.07	3.36	1.05	3.26[b]	1.01	3.33*
Conscientiousness	4.23	0.74	4.14[a]	0.72	4.27[b]	0.69	4.80**
Agreeableness	3.57	0.80	3.52	0.77	3.50	0.79	1.29
Openness	3.75[b]	1.00	3.73[b]	0.93	3.51[a]	0.98	11.43***
MIGM	1.44[a]	1.46	0.93[b]	1.26	1.15[c]	1.39	14.66***
Self-Continuity	1.78[6]	1.11	2.11[b]	1.15	2.66[c]	0.97	108.34***
Social Loneliness	1.22[b]	1.09	1.19[b]	1.07	0.89[a]	0.92	20.95***

Notes. Short-term divorced: up to 2 years since divorce, Long-term divorced: 2-5 years since divorce. a, b, c: Scheffe's Post-hoc tests indicating differences between specific groups (e.g., a vs b, b) with at least $p < .01$). Categorical variables include the following frequencies: Gender (women): Short-term divorced n = 303 (71.3%), Long-term divorced n = 242 (57.1%), Married n = 484 (55.8%), $\chi^2 = 30.58^{***}$; Children (yes): Short-term divorced n = 334 (79.0%), Long-term divorced n = 323 (76.7%), Married n = 777 (90.7%), $\chi^2 = 53.62^{***}$; New Partner (yes): Short-term divorced n = 104 (24.7%), Long-term divorced n = 193 (46.4%), $\chi^2 = 43.01^{***}$; Someone to count on (yes): Short-term divorced n = 370 (89.2%), Long-term divorced n = 307 (75.1%), $\chi^2 = 28.36^{***}$. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3.2 Correlations of Study Variables for Short-Term Divorced (Below Diagonal; *n* = 425) and Long-Term Divorced Individuals (Above Diagonal; *n* = 425)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Social Loneliness	1	.03	-.15**	.23***	-.35***	-.05	-.16**	-.33***	.24***	-.37***	-.16**	-.10*	-.14**	-.22***	-.12*
2. Age	.06	1	-.13**	-.02	-.01	.07	-.19***	-.10^{+}	-.05	-.04	.01	.06	.08	.11*	.10*
3. Gender	-.06	-.13**	1	-.05	-.07	.04	-.18***	.20***	.17***	.12*	.11*	.16***	.11*	-.10*	-.11*
4. Income Adequacy	-.19***	.06	-.03	1	.29***	-.03	.15**	.02	-.18***	.04	-.06	-.05	-.02	.10*	.04
5. Subjective Health	-.28***	-.03	-.06	.24***	1	-.05	.10*	.07	-.31***	.09^{+}	.09^{+}	.09^{+}	.06	.15**	.09^{+}
6. Children	-.01	-.02	.08^{+}	-.07	-.07	1	-.03	.21***	-.01	.08	.004	-.02	-.01	.01	-.04
7. New Partner	-.09^{+}	-.11*	-.22***	.10^{+}	.19**	-.00	1	.01	-.14**	.08	.01	-.15**	-.01	.04	.02
8. Someone to count on	-.38***	-.08	.16**	.01	.04	-.03	.02	1	-.02	.22***	.05	.11*	.07	.18***	-.11*
9. Neuroticism	.33***	.06	.20***	-.13**	-.36***	.04	-.12*	-.11*	1	-.26***	-.18***	-.10*	-.04	-.14**	-.13**
10. Extraversion	-.38***	-.02	.08^{+}	.13***	.18***	-.08	.06	.21***	-.18***	1	.09^{+}	.06	.20***	.13**	-.06
11. Conscientiousness	-.09^{+}	-.02	.08	-.01	.03	-.05	-.03	.20***	-.08^{+}	.11*	1	.06	.23***	.06	.03
12. Agreeableness	-.19***	.03	-.02	.04	-.03	-.08^{+}	-.07	.10*	-.18***	.07	.18***	1	.11*	.07	.01
13. Openness	-.16**	.11*	.10*	.02	-.01	-.03	-.01	.04	-.09^{+}	.25***	.09^{+}	.06	1	.13*	-.17***
14. MIGM	-.20***	.14**	-.03	.11*	.27***	.01	-.03	.05	-.13**	.17***	-.03	.16**	.22***	1	-.07
15. Self-Continuity	-.03	.14**	-.09^{+}	.02	.03	-.05	-.06	.01	-.07	-.04	.02	.05	-.09^{+}	-.03	1

Note. Short-term divorced: *up to 2 years since divorce*, Long-term divorced: *2-5 years since divorce*, MIGM: *Multiple important group memberships*. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3.3 Correlations of Study Variables for Continuously Married Individuals (n = 869)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Social Loneliness	1												
2. Age	-.08*	1											
3. Gender	-.11**	-.08*	1										
4. Income Adequacy	-.17***	-.01	.00	1									
5. Subjective Health	-.20***	-.19***	-.09*	.19***	1								
6. Children	-.08*	-.05	.01	.02	.06^{+}	1							
7. Neuroticism	.15***	-.04	.20***	-.08*	-.22***	-.02	1						
8. Extraversion	-.29***	-.06	.06^{+}	.02	.05	.05	-.16***	1					
9. Conscientiousness	-.17***	.09**	.05	-.002	.12***	-.02	-.06^{+}	.14***	1				
10. Agreeableness	-.15***	.01	.09**	.02	.06^{+}	.06^{+}	-.13***	.06^{+}	.07*	1			
11. Openness	-.11**	.01	.07*	.10**	.06	-.06^{+}	-.09**	.21***	.14***	.04	1		
12. MIGM	-.18***	.04	-.05	.10**	.09*	.05	-.12***	.17***	.02	.06^{+}	.11**	1	
13. Self-Continuity	-.13***	.20***	-.03	-.08*	.07*	-.01	-.12***	.03	.11**	.13***	-.05	-.06	1

Note. MIGM: *Multiple important group memberships. New Partner* and *Someone to count on* variables do not apply to the married. + p < .10. * p < .05. ** p < .01. *** p < .001.

3.3.2 Factors Associated with Social Loneliness

Multiple regression analyses were performed to investigate the predictors of social loneliness separately for short-term divorced, long-term divorced and married individuals (Table 2.4). For the short-term divorced group, the model explained 34% of the individual differences in loneliness. In this group, individuals with fewer financial resources (β = -.09*) and poorer subjective health (β = -.15**) felt lonelier, as well as those who were less extroverted (β = -.22***), less agreeable (β = -.12*) and more neurotic (β = .17***). Having someone to count on in overcoming the divorce was also associated with lower social loneliness (β = -.27***). Importantly, MIGM (β = -.04) and self-continuity (β = -.01) did not explain any individual differences in loneliness.

Table 3.4 Predictors of Social Loneliness (Standardized Regression Coefficients, *N* = 1719)

	Short-term Divorced (*n* = 425)	Long-term Divorced (*n* =425)	Married (*n* = 869)
Age	.04$_{a}$	-.01$_{a}$	-.10$^{**}{}_{b}$
Gender (female = 1)	-.05$_{a}$	-.15$^{**}{}_{b}$	-.12$^{***}{}_{b}$
Income Adequacy	-.09*	-.13**	-.12***
Subjective Health	-.15$^{**}{}_{a}$	-.23$^{***}{}_{b}$	-.15***
Children (yes = 1)	-.06	-.003	-.05
New Partner (yes = 1)	-.05	-.12**	-
Someone to count on (yes =1)	-.27***	-.22***	-
Neuroticism	.17$^{***}{}_{a}$	.04$_{b}$	.05$_{b}$
Extraversion	-.22***	-.25***	-.23***
Conscientiousness	.03$_{a}$	-.06$_{b}$	-.09$^{**}{}_{b}$
Agreeableness	-.12**	-.02	-.08*
Openness	-.06	-.04	-.003
MIGM	-.04$_{a}$	-.20$^{*}{}_{b}$	-.36$^{***}{}_{c}$
Self-Continuity	-.01$_{a}$	-.20$^{***}{}_{b}$	-.16$^{***}{}_{b}$
MIGM * Self Continuity	-.04$_{a}$	.11$_{b}$	.27$^{**}{}_{b}$
R^2	.34	.39	.21

Notes. Short-term divorced: *up to 2 years since divorce*, Long-term divorced: *2-5 years since divorce*, MIGM: *Multiple important group memberships*. a, b and c indicate differences between specific groups (e.g., a vs b, b) for predictors based on follow-up analyses for group differences. + p < .10. * p < .05. ** p < .01. *** p < .001.

For the long-term divorced, the model explained 39% of the total variance in loneliness. Men felt lonelier than women in this group (β = -.15**), as well as those who did not have a new partner (β = -.12**). Similar to the short-term divorced, having fewer financial resources (β = -.13**), being in poorer health (β = -.23***), not having someone to help deal with divorce (β = -.22***) and being less extroverted (β = -.25***) were associated with higher loneliness. In contrast to the short-term divorced, having MIGM was linked to less loneliness (β = -.20*), whereas lower self-continuity was linked to higher loneliness (β = -.20***).

For married individuals, the amount of total variance in social loneliness explained by the regression model was substantially smaller (21%). In this group, age was a significant predictor: Younger married individuals felt lonelier (β = -.10**). Similar to the long-term divorced group, men were also lonelier than women (β = -.12***). Lower income adequacy (β = -.12***) and poorer health (β = -.15***) were linked to higher loneliness, similar to the divorced groups. Aside from the beneficial effect of extroversion (β = -.23***), which was also present in both divorced groups, being less agreeable (β = -.08*) and less conscientious (β = -.09**) were associated with higher loneliness. Similar to the long-term divorced group, having less MIGM (β = -.36***) and a lower sense of self-continuity (β = -.16***) were related to higher loneliness in the married individuals. Additionally, the interaction between self-continuity and MIGM was significant in this group (β = .27**).

The three-way interaction between the grouping variable (short-term, long-term divorced, married), MIGM and self-continuity was also tested (Table 2.4), suggesting that the interaction was positively associated with social loneliness only in the married group (β = .27**). Indeed, as presented in Figure 2.1, the levels of social loneliness were lower for the married compared to the divorced individuals in any combination of the MIGM with self-continuity (e.g., less MIGM and high self-continuity), except when having more group memberships and high self-continuity which was particularly beneficial. With this combination, the long-term divorced resembled the married in the levels of social loneliness.

However, in all three groups the combination that best protected against social loneliness was being a member of multiple important groups and perceiving high levels of self-continuity, while the lack of those factors (low MIGM and low self-continuity) was associated with higher levels of loneliness in all three groups. Regarding the other two combinations, namely having high MIGM with low self-continuity or low MIGM with high self-continuity, the levels of social loneliness differed significantly only between the married and the two divorced groups. These findings indicate that having high levels in either self-continuity or MIGM can compensate for the lack of the other in all groups, but having high levels in both is most beneficial.

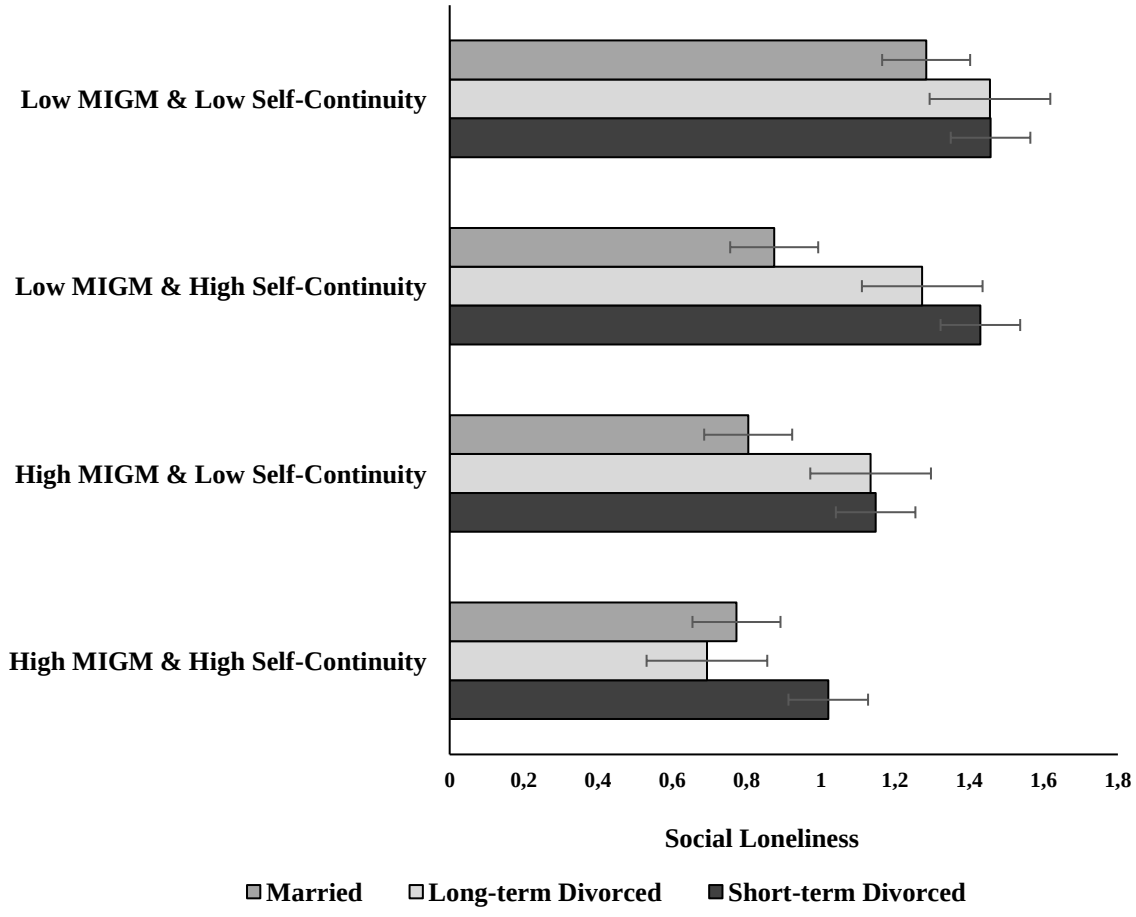

Figure 3.1 Mean-levels and standard errors for social loneliness illustrating the significant three-way interaction grouping variable x MIGM x self-continuity (N = 1719).

To further confirm the findings, analyses were replicated with bootstrapping to check for the robustness of the model, producing an average bias estimation of less than 0.007, leading to the same results as reported above. The reliability of the differential predictive patterns across groups was tested with additional regression analyses conducted for the whole sample, including the group variable and interaction effects (e.g., self-continuity x grouping variable). The results confirmed the findings reported above and our hypothesis regarding the different predictive patterns across groups (H6).

3.4 Discussion

This study investigated the importance of psychological and social resources as predictors of social loneliness in the context of later-life divorce, with a particular focus on time-dependent differences and a special interest in identity-promoting aspects. Our study contributes to existing research on adaptation to divorce with the following findings: We confirmed differential time-dependent associations of personality (e.g., neuroticism), identity-promoting mechanisms (e.g., multiple memberships in valued social groups and self-continuity) and social resources (e.g., new partner) with social loneliness, comparing two post-divorce groups (short-term, up to 2 years since divorce; and long-term, 2 to 5 years since divorce) and married individuals.

3.4.1 The Central Role of Personality in the First Post-Divorce Phase

Early after divorce, personality factors had a particularly important role in explaining individual differences in social loneliness. For the recently divorced individuals, extroversion had the strongest effect among the investigated personality aspects, with higher extroversion being associated with lower loneliness. Also, being more agreeable and less neurotic was related to less social loneliness. These findings replicate Pudrovska and Carr's (2008) results,

showing that more extroverted individuals cope better with divorce and partly confirm our hypothesis regarding the effect of different personality traits on social loneliness in the context of divorce (H2). Although extroversion was also associated with lower loneliness in the long-term divorced, suggesting that being more open to social contact and enjoying social interactions are also beneficial later, agreeableness and neuroticism were not linked to loneliness in this group. These results confirm our hypothesis (H2a) that during acute transitions, such as right after the divorce, the contribution of personality in overcoming difficulties is more important compared to other resources, supporting the accentuation model of Caspi and Moffit (1993).

3.4.2 Identity-Promoting Mechanisms Are Beneficial, but Only for Long-Term Divorced and Married Individuals

Confirming our hypothesis (H4a) that identity-promoting resources may explain inter-individual differences at a later adaptation phase of divorce, we found that being a member of multiple highly valued social groups was associated with lower social loneliness in long-term divorced individuals. These findings support the assumption that belonging to such social groups may be beneficial due to not only accessing social partners but also a context that promotes a person's identity through the importance that they place on those groups. Married individuals also benefitted from multiple important groups, which could indicate their protective nature against consequences of age-related social losses, as well as potential issues occurring within their long-term marriage (H4). These findings also seem to be in line with Weiss (1973), who argued that individuals lacking an engaging social context are at risk of experiencing social loneliness.

Perceiving higher self-continuity was also associated with experiencing less social loneliness in the long-term divorced, confirming theoretical assumptions about the importance of self-continuity as a crucial identity process and as a means of coping with

adversity (H3). As indicated by Atchley (1989), self-continuity may enable adaptation in times of change, when previously important identities can no longer be maintained. However, our findings expand existing knowledge on self-continuity by indicating the time frame in which it becomes particularly important in the divorce process, namely after the first adaptation phase has passed (H3a). In our study, a positive effect also became apparent in married individuals, suggesting that self-continuity may be beneficial even without specific critical life events. In line with Chandler and Proulx (2008), who argued for the importance of identity stabilization, self-continuity was associated with lower loneliness. The similar predictive patterns (H6) of the long-term divorced and married groups are in line with Amato's theory (2000), providing new insights into how the adaptation process to divorce is associated with social engagement and identity, as well as adding to the literature regarding the protective role of self-continuity, which seems beneficial regardless of having a life crisis or not.

For those individuals who were more recently divorced, the positive impact of perceived self-continuity was not confirmed (H3a). In line with Amato (2000), the results indicated that time is an important factor to consider: In the first post-divorce phase, individuals may experience higher psychological distress because they have to deal with the loss and their new life circumstances. During the early post-divorce phase individuals try to evaluate the new situation, making them less likely to perceive any self-continuity, which is supported by the fact that the short-term divorcees reported the lowest level of self-continuity. Similarly, multiple important group memberships did not prove beneficial for the recently divorced (H4a), which partly stands in contrast to findings by Haslam and colleagues (2008), who showed that multiple group memberships have a positive impact on well-being in times of life transitions, such as in post-stroke rehabilitation. The contrasting findings may suggest that divorce, as a life event, has its particular challenges that are not only bound to the availability of psychological and social resources but also closely related to the time frame. In

the context of divorce, it seems to be the case that the "social cure" effects (Haslam et al. 2008) only occur later in the adaptation process. Thus, paralleling Amato's divorce theory (2000), multiple important group memberships and self-continuity may not be helpful during divorce in the short run, but become important after some time.

Regarding the interplay between self-continuity and multiple group memberships, individuals who had multiple important group memberships and high levels of self-continuity were less lonely across all groups (H5). However, there were differential associative patterns for each group. In the married group, individuals with concurrent low self-continuity and few group memberships had a significantly higher risk for experiencing loneliness. Being prone to loneliness, even in the context of marriage, is in line with prior studies (Amato, 2000; Dykstra & de Jong Gierveld, 2004). Married individuals may experience other transitions, such as loss of shared interests, or personal or partner health issues, which could be additional risk factors for loneliness. Previous research (Haslam et al. 2008) suggested that individuals who have multiple important group memberships in times of transitions are better able to find new social roles and adjust them to their identity, which may, according to our findings, also be important for older married adults. Additionally, self-continuity allows these changes to be perceived as additions to their life story rather than disruptions (Atchley, 1989). Thus, our findings make an important contribution to the understanding of the interplay of social group memberships and self-continuity, as well as how they associate individually with adverse outcomes, such as social loneliness, in post-divorce phases in later life (H5a), as well as in the context of marriage. This is the first study to address both variables together; future studies may replicate the interplay of multiple important group memberships and self-continuity in different contexts with or without critical life events.

3.4.3 Social Resources Associated with Feeling Less Lonely in Both Post-Divorce Phases

Having someone to help deal with the divorce was important for short- and long-term divorced individuals, as well as having a new partner, although only for the long-term divorced group, associated with lower social loneliness levels, partially confirming our hypothesis (H1) because children did not explain any variance in social loneliness. For the recently divorced in particular, having a person to help them overcome the divorce was the most powerful factor examined in this study. These findings indicate the beneficial role that the availability of social partners can play after divorce, especially in the recently divorced group. Haslam and colleagues (2014) previously reported that only group social engagement (i.e., group membership) and not individual social engagement (i.e., one-on-one interactions) was important as a longitudinal predictor in the context of age-associated cognitive decline. However, individual and group social engagement may both have independent beneficial effects in the context of loneliness. Thus, our results add to the literature regarding the importance of individual ties and group engagement during a life crisis, such as divorce.

3.4.4 Age and Social Loneliness

Being older and married seems to be beneficial in terms of social loneliness, in line with previous research indicating that with advancing age, individuals generally feel as lonely as or less lonely than they did at younger ages (Luhmann & Hawkley, 2016; Shute & Howitt, 1990; Tesch-Römer et al. 2013). The fact that age was not negatively related to social loneliness in any of the two divorced groups suggests that individuals, independent of their age, may experience loneliness due to the challenges they face in adapting to divorce. These findings indicate that individuals who have experienced a critical life event, such as divorce, in later life may be at risk of not experiencing the same normative reduction in social loneliness levels as their married counterparts do with advancing age. They may also

experience stability in social loneliness, but at significantly higher levels than the married individuals do, as indicated by our results. Nevertheless, the relationship between age and social loneliness may be stronger when examined with prospective longitudinal data, where the pre-divorce levels of social loneliness could also be considered.

3.4.5 Limitations

Despite the various strengths of this study (i.e., novel research question, unique measures, large representative sample), various limitations deserve mention. One limitation is that we used the moment when separation or divorce was declared as the main marker of the transition. However, separation or divorce is a long-lasting process that may begin well before it is publicly declared (Amato, 2000). Defining the start of a transition is always difficult, which may particularly be true for divorce. Thus, the definition of the three groups, despite the clear-cut results, may hide some heterogeneity. Another limitation is that we used cross-sectional data, meaning that changes in predictors and outcome before and after divorce could not be examined. Causal inferences were not possible, and only longitudinal data would help disentangle the dynamics of the coping process. Nevertheless, the results provide an important starting point for future prospective longitudinal research and the development of interventions. Lastly, we were interested in performing additional gender analyses for each group because the literature indicates that further research would contribute to a better understanding of the differences and similarities between men and women in how they experience changes to identity (Calasanti & Bowen, 2006; Meyers-Levy & Loken, 2015). However, this was not possible because the subsamples of men and women were too small for the number of predictors entered in the regression, leading to unreliable findings.

3.4.6 Conclusion

In conclusion, the presence of social and psychological resources, including valued social groups and self-continuity, seems to be beneficial for both divorced and married individuals, in order to prevent social loneliness. Although some resources have similarly positive effects in all groups, such as health and financial means, other resources were more important under certain circumstances, such as personality right after divorce, and group memberships and self-continuity only at a later post-divorce phase. These differential effects highlight the necessity of carefully considering time frames when studying adaptation and creating divorce interventions that take life circumstances and adaptation phase into account. Furthermore, interventions that target social loneliness in later life should focus on the beneficial effects of important social group memberships and perceived self-continuity for married and long-term divorced individuals. Strengthening the person through the development of self-continuity (e.g., through established programs such as reminiscence therapy) and group social engagement (e.g., enhanced access to community and social skills), with and without divorce experience, seems an effective way to prevent social loneliness in the second half of life.

Table 3.5 Key Messages of Chapter 3

- Self-continuity is more helpful in later stages of adaptation to divorce than in earlier ones, when individuals rely more to well-established personality traits in order to feel less socially lonely.
- Similar to self-continuity, social-continuity (i.e., multiple important group memberships) is beneficial in a later stage after divorce.
- Social-continuity complements self-continuity, as high levels in both mechanisms relate to better well-being, while their concurrent absence leads to higher vulnerability.
- Social-continuity and individual ties are both beneficial for feeling less lonely in later life after divorce.

4 The mediating role of self-continuity on the link between childhood adversity and social and emotional loneliness after critical life events in later life

Abstract

Objectives: How critical life events (i.e., divorce, bereavement) in the second half of life are experienced, may depend on many factors, including on whether individuals have faced childhood adversity, making adaptation to later events more challenging. Pathways to reduced adaptation success are however poorly understood. Self-continuity, an identity mechanism that incorporates life changes into a coherent life-story, may contribute to a better adaptation to adult critical life events, however individuals with childhood events may have lower levels. This study aims at investigating the mediating role of self-continuity, channeling the effect of childhood adversity on later life well-being, for individuals experiencing divorce or bereavement in the second half of life.

Methods: Data were derived from the longitudinal LIVES Intimate Partner Loss Study conducted in Switzerland from 2012 to 2016 (2-years intervals). The sample consisted of individuals having experienced divorce (n = 404, M_{age} = 57.35) or bereavement (n = 325, M_{age} = 71.36) in later life, using a continuously married control group (n = 547, M_{age} = 67.04). Multilevel mediational models were used.

Results: Self-continuity fully mediated the effect of childhood adverse events on loneliness outcomes in divorcees (i.e., emotional loneliness) and widowed (i.e., social loneliness). Partial mediations were also observed for life satisfaction and emotional loneliness for the widowed and for all well-being indicators for the married.

Discussion: In conclusion, those who were confronted with childhood adversity were less well equipped for facing later life partner loss, as they had less self-continuity, which in turn led to lower well-being outcomes.

4.1 Introduction

Critical life events throughout the life course can have a negative impact on psychological well-being (Spini, Bernardi & Oris, 2017). It is well documented that adverse childhood events influence not only the children's well-being, but that they also have long lasting effects in later life (Cheval et al., 2019; McCarthy & Maughan, 2010; Turner & Lloyd, 1995). For instance, the adaptation to critical life events later in the life course, such as divorce or bereavement, may be more difficult for individuals who have experienced adversity during childhood. One potential pathway through which childhood adversity has a long-term effect may be due to its negative effects on identity development (Grotevant, Lo, Fiorenzo, & Dunbar, 2017; Markovitch, Luyckx, Klimstra, Abramson, & Knafo-Noam, 2017). Self-continuity is an identity mechanism that emerges in adolescence as a positive outcome of development (Erikson, 1968), and may have a particularly useful role in later life, when individuals try to maintain their "ego identity", despite age-related changes in their life (Erikson, 1968). Although previous research has focused on the consequences of childhood adversity on well-being (McCarthy & Maughan, 2010; McLaughlin, Conron, Koenen, & Gilman, 2010; Nurius, Green, Logan-Greene & Borja, 2015; Turner & Lloyd, 1995), little is known regarding how childhood adverse events may influence the development of self-continuity over the life course and how self-continuity may, in turn, affect well-being after a critical event such as partner loss. Using a life course perspective (Spini et al., 2017), this study aims in investigating the impact of childhood adversity on later life well-being when also considering self-continuity as a possible mediator of this relationship, for individuals having experienced divorce or bereavement in the past five years, using a group of married individuals as reference.

4.1.1 Childhood Adversity as a Source of Life Course Vulnerability

Vulnerability throughout the life course has been recently described by Spini and colleagues (2017) as a dynamic process involving critical life events and the lack of resources. Critical life events are considered as triggers of change in the life course and they may have ambivalent consequences for the individual. However, when these events occur in important developmental stages, then the consequences may have a stronger and, perhaps, more long-lasting impact on adaptation mechanisms, such as self-continuity, and outcomes, such as well-being.

Poverty, physical and emotional neglect, witnessing of and suffering from physical or sexual violence in childhood are adverse events with well-documented negative consequences on child's development and well-being. According to Nurius and colleagues (2015), childhood adversity can also exacerbate the effects of subsequent life course stressors and impede adaptation and coping to future adverse events across the life course. In line with these findings, neuro-physiological research has related early life adversity with permanent changes in the brain structure and the Hypothalamic-Pituitary-Adrenal (HPA) axis, causing higher stress reactivity and reduced cognitive functioning in adult life (Hanson et al., 2015; Lupien, McEwen, Gunnar, & Heim, 2009). Individuals with adverse childhood experiences have also been found to develop poor attachment styles that lead to negative relationship patterns in adulthood (McCarthy & Maughan, 2010) and show poor marital outcomes, such as low relationship quality or divorce (Whisman, 2006). These findings point out that adverse childhood events have a lasting impact on several life domains across the life course due to underlying physiological and social mechanisms. However, little is known regarding the impact of childhood events on identity mechanisms, which, in turn, could be responsible for maintaining lower levels of well-being.

Increased vulnerability becomes obvious when facing new coping challenges: individuals with adverse childhood events show worse mental health outcomes after critical

events in adulthood (McLaughlin et al., 2010). The loss of one's spouse, either through divorce or death, can be particularly taxing for the individual's well-being (Dykstra & de Jong Gierveld, 2004; Pudrovska & Carr, 2008), as this event requires a reevaluation of important social roles and identity. If this event occurs in the second half of life, it can be especially critical, given that advancing into older age is associated with other events and limitations, such as health-related (e.g., cardiovascular issues, menopause) or work-related changes (e.g., retirement). Consequently, the individual has to cope with new economic, social and psychological challenges. Divorce and bereavement may resemble one another as critical life events, as individuals lose the valued social role of being a spouse, however, the psychological implications for divorce and bereavement differ (Pudrovska & Carr, 2008). An important shortcoming in this research is the investigation of mechanisms which may explain these differential effects and how these mechanisms may promote adaptation. Of particular interest are psychological factors that are associated to the maintenance of identity, which represents an important developmental task in older age.

4.1.2 Self-Continuity as Coping Mechanism

Self-continuity is the ability to connect different parts of one's past and future with the present, constructing a meaningful whole that distinguishes individuals from others and gives them a sense of uniqueness. Erikson (1968) first described self-continuity as the positive developmental outcome of the resolution of the fifth crisis emerging during adolescence, from which "ego integrity" evolves as a positive outcome. The inability to successfully overcome the fifth crisis of development leads to role confusion (Erikson, 1968). As such, self-continuity represents an identity mechanism that defines who we are, who we were and who we will be in the future, providing us with stability when faced with life changes. In later adulthood, the eighth crisis returns to the topic of identity, as captured by the conflict ego integrity vs despair to resolve.

In his continuity theory of normal aging, Atchley (1989) distinguishes *self-continuity* (or internal continuity) from *social continuity* (or external continuity), which refers to the ability of the person to maintain social roles, groups or ties until advanced age. Both aspects of continuity are used in middle and older adulthood as coping mechanisms for changes related to aging. However, continuity may also be a coping mechanism for other non-aging related life changes. The theory of narrative identity has contributed in the past decades to a broader definition of self-continuity: According to several researchers (Bluck & Alea, 2008; Breakwell, 1988, Bruner, 1991; Habermas & Köber, 2015; McAdams, 2011), self-continuity emerges and is maintained when the individual reflects upon his/her past and is able to incorporate specific life experiences to a unique and coherent life-story. For Erikson (1968), self-continuity becomes again a key element of identity in later life, when individuals tend to focus more on their life accomplishments, ideally leading to a sense of fulfilment. When individuals are unable to reflect upon their past with a sense of fulfilment, then despair and regret emerge, leading to feelings of self-discontinuity.

Lower levels of later life self-continuity have been found to be related to more childhood adverse events (Lampraki et al., submitted), which may indicate that individuals have difficulties incorporating them into their life-story. It is, however, still unknown whether poor self-continuity is one of the mechanisms that contribute in maintaining vulnerability: As individuals with childhood trauma have lower self-continuity and therefore fewer coping resources when faced with new events, do they show poorer adaptation outcomes, such as lower life satisfaction or higher loneliness, when experiencing partner loss? The investigation of this question may help to identify mechanisms which mental health professionals could strengthen during adaptation to later life critical events.

4.1.3 The Present Study

Using a life course perspective, we investigated the impact of distal (i.e., childhood adversity) and proximal (i.e., later life partner loss) critical life events on well-being, when considering the role of self-continuity as an identity mechanism channeling the effect of the events. Specifically, we examined the links between childhood adversity and life satisfaction, social and emotional loneliness and if these links were mediated by self-continuity. We expected that childhood adversity would have a negative effect on life satisfaction and a positive effect on social and emotional loneliness, when the level of self-continuity in later life was not considered. We also expected that childhood adversity would have a distal negative effect on self-continuity in later life and that, in turn, self-continuity would be positively related to life satisfaction and negatively associated to social and emotional loneliness. We assumed that when self-continuity is also considered, then the significant links between childhood adversity and well-being outcomes would become less strong or even disappear, indicating partial or full mediations, respectively.

4.2 Methods

4.2.1 Sample and Procedure

We used data from the prospective longitudinal study "LIVES Intimate Partner Loss Study" (Perrig-Chiello, Hutchison, & Morselli, 2015), conducted in Switzerland (German- and French-speaking parts) from 2012 to 2016 in three waves, at two-year intervals. We recruited participants mainly through the Swiss Federal Office of Statistics and a minority through advertisements. Participants had to be currently married (for at least 15 years) or had lost their partner through separation/divorce or bereavement (after being married for at least 15 years). Participants filled out a paper-and-pencil or online questionnaire. The sample was stratified by age, gender and marital status. The present study included a total of 1680

individuals aged 46 to 92 years old: divorced (or separated, having experienced the loss during the past five years; n = 404), widowed (loss during the past five years; n = 325) and married (n = 547).

4.2.2 Measures

Dependent Variables. *Life Satisfaction* was measured with the five items of the Subjective with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985): E.g., "In most ways my life is close to ideal". Participants answered on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). A mean composite score was built with higher values indicating higher satisfaction with life (Cronbach's α =.89 at wave 1).

Social and Emotional Loneliness were measured with the short De Jong Gierveld Loneliness Scale (De Jong Gierveld & Kamphuis, 1985). The measure assesses social and emotional loneliness, as suggested by Weiss (1973), with three items for each dimension (social loneliness: e.g. "There are plenty of people with whom I feel closely connected"; emotional loneliness: "I feel a general emptiness"). The participants answered on a 5-point scale (1 = *no* to 5 = *yes*). Negatively worded items were recoded, and mean scores were built for both loneliness indicators (higher values indicating higher loneliness; social loneliness: Cronbach's α = .89; emotional loneliness: Cronbach's α = .78, at wave 1).

Independent Variables. Using a filter question (i.e., "Have you ever lost your long-term partner through separation, divorce or death, and if so, when?") we created a *grouping variable* that distinguished the marital status groups into divorced (including separated), bereaved, and married individuals (1 = *separated/divorced*, 2 = *widowed*, 3 = *married*).

Socio-demographic variables included *age*, *gender* (0 = *men*, 1 = *women*), and *financial adequacy* (1 = *I do not have enough money to support myself* to 3 = *I have more than enough money to support myself*).

Time since event was calculated by subtracting the year of the loss from the year of questionnaire administration for the divorced and widowed groups.

The *number of important groups* (social continuity) was measured with the Exeter Identity Transitions Scales (Haslam et al., 2008). Participants reported up to six social groups they belonged to and indicated how important these groups were to them using a 5-point scale (1 = *not important* to 5 = *very important*). Only social groups that were rated as important or very important were used to construct a sum score, with a theoretical range from 1 = *one important or very important group* to 6 = *six important or very important groups*.

New partner was measured with a single item, addressing divorced and widowed participants ("Are you currently involved in a romantic relationship?"). The answering format was 1 = *yes* or 0 = *no*.

Childhood Adverse Events were measured with six items capturing childhood (or adolescent) adversity. Participants had to specify how often they had experienced one or more of the following events in childhood or adolescence (0-18 years old): Emotional neglect, being frightened or hurt by person of reference, witnessing domestic violence, extreme poverty, physical abuse and sexual abuse. The answering format was 0 = *never* to 4 = *very often.* A mean-composite score was calculated with higher values indicating more childhood adversity (Cronbach's α =.77).

Mediator. *Self-continuity* was measured with three items from the Exeter Identity Transitions Scales (Haslam et al., 2008): "I am the same person as I always was", "With time a lot of things have changed, but I'm still the same person", and "I am a different person than I was in the past". Answers were given on a 5-point scale (1 = *does not apply to me at all* to 5 = *fully applies to me*). A mean score was calculated with higher values indicating higher self-continuity. The scale had good internal consistency across study waves (e.g., Cronbach's α = .81 at wave 1).

4.2.3 Analytical Strategy

This study used multilevel (2-levels) mediation models to test whether self-continuity mediated the link between childhood adversity and outcomes, using separate models for life satisfaction, social and emotional loneliness. First, we ran three moderated mediation models (results presented in appendix 7.2), using the grouping variable as a moderator on the link between self-continuity and the three well-being outcomes. In these models we excluded the variables "time since event" and "new partner" as they corresponded only to the divorced and bereaved individuals and not the married. In order to test the moderated mediation models with all variables included in the analysis, we then ran new analyses (results presented in appendix 7.2) for all outcomes using the marital status grouping variable that separated divorced and bereaved individuals (married individuals were excluded). The results of these first models (not presented in this chapter, see appendix 7.2) indicated that for life satisfaction and emotional loneliness there were differences between the marital status groups. For social loneliness the moderation effect was not significant. Therefore, in order to identify how the mediation differed across marital status groups and, in addition, to be able to compare the three well-being outcomes, separate analyses were conducted for the divorcees, the bereaved and the married. In order to test between-subjects' differences, we included the 3-waves-pooled person-mean for age, financial adequacy, time since the event, number of important groups, new partner and self-continuity, gender and childhood adversity. To test within-subjects' variation we also person-mean centered age, number of important groups, new partner and self-continuity. Fixed effects estimates, random intercepts, slopes and covariances were calculated within all groups, but only the final, most parsimonious (i.e., best fit) models were presented.

In order to verify that there was sufficient within-person variability, which would justify multilevel modeling, we first ran fully unconditional models (no predictors or covariates included), then added the independent variables, with self-continuity being the last

variable to include in the model in order to test mediation. To determine the between-person variability we calculated the Intra-class Correlation Coefficient (ICC; Raudenbush & Bryk, 2002). We used SPSS version 24 and the corresponding macro designed for testing multilevel mediation models (MLMED) by Rockwood and Hayes (2017). Results were presented using unstandardized Beta coefficients. For the mediation analyses, the indirect effects were tested using Monte Carlo confidence intervals.

4.3 Results

4.3.1 Mediational Analyses

The expected mediation of self-continuity on the link between childhood adversity and life satisfaction was not confirmed in the divorcees (Figure 4.1, panel a). However, for the widowed and married individuals, the link between childhood adverse events and life satisfaction was partly mediated by self-continuity (Figure 4.1, panel b: widowed; panel c: married), indicating that individuals with higher frequency of childhood adverse events than the population average tend to experience less self-continuity (than the population average) and, therefore, feel less satisfied with their life. Similar to life satisfaction, no mediational pattern of self-continuity on the link between childhood adversity and social loneliness was found for the divorcees (Figure 4.1; panel d). However, a full mediation was observed for the widowed: Self-continuity fully mediated the link between childhood adverse events and social loneliness (Figure 4.1; panel e), indicating that widowed individuals having experienced more adversity early in life than the population average, had lower levels of self-continuity later in life and, therefore, felt more socially lonely. A partial mediation was observed for the married group (Figure 4.1; panel f). These findings suggested that the link between childhood adversity and social loneliness became weaker when considering self-continuity for the widowed and the married, but not for the divorcees. Last, we observed a full mediation of self-continuity on the link between childhood adversity and emotional

loneliness in the divorcees (Figure 4.1; panel g), suggesting that when divorcees experienced childhood adverse events, their later-life self-continuity level was lower and therefore, they felt more emotionally lonely. We also found partial mediations for the widowed and the married groups (Figure 4.1; panel h: widowed; panel i: married). These findings suggested that the link between childhood adversity and emotional loneliness were channeled by self-continuity in all groups.

4.3.2 Covariates' Effects of Mediational Analysis for Life Satisfaction

Descriptive statistics of all study variables are presented in Table 4.1. For life satisfaction, the fully unconditional model indicated that the ICC, estimating the between-subjects' variability (Heck, Thomas, & Tabata, 2013), was ρ = .70 for the divorced, ρ = .67 for the widowed, and ρ = .63 for married individuals. Consequently, these results indicated that, for example, 70% of the total variance of life satisfaction in the divorced was accounted for by the within-subject level, while 30% was attributed to level differences among individuals.

Table 4.1 Descriptive Statistics of Study Variables

	Divorced (n = 404)	Widowed (n = 325)	Married (n = 547)
	M (SD) or N (%)	M (SD) or N (%)	M (SD) or N (%)
Life Satisfaction	4.85 (1.25)	5.33 (1.01)	5.62 (0.91)
Social Loneliness	1.08 (1.05)	0.88 (0.92)	0.76 (0.85)
Emotional Loneliness	0.95 (1.00)	0.88 (0.84)	0.52 (0.66)
Age	57.35 (6.72)	71.36 (8.69)	67.04 (11.10)
Gender (women)	275 (68)	195 (60)	290 (53)
Financial Adequacy	2.01 (0.50)	2.12 (0.43)	2.14 (0.45)
Time Since Event	4.09 (2.12)	4.84 (2.06)	-
Number of important groups	0.72 (0.99)	0.68 (1.04)	0.67 (1.00)
New Partner	0.36 (0.48)	0.18 (0.39)	-
Childhood adverse events	1.77 (0.77)	1.53 (0.62)	1.48 (0.56)
Self-continuity	1.99 (1.14)	2.56 (1.05)	2.72 (0.95)

Notes. Descriptive statistics refer to 3-waves-pooled data (except from childhood adverse events which was collected in wave 3).

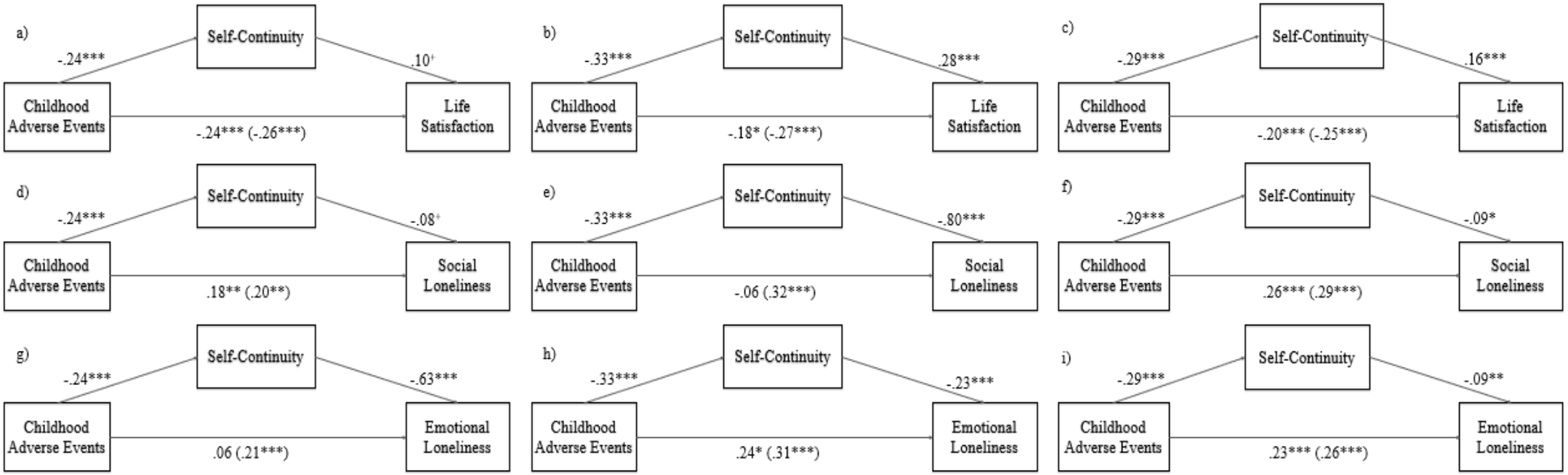

Figure 4.1 Between-subjects' mediation patterns of self-continuity on the link between childhood adversity and well-being outcomes
Notes: Panel a = divorcees, indirect effect B = -.02, SE = .01, *95% MCCI* [-.055, .001], z_{sobel} = -1.65, p = .10;
Panel b = widowed, indirect effect B = -.09, SE = .03, *95% MCCI* [-.154, -.041], z_{sobel} = -3.15, $p < .01$;
Panel c = married individuals, indirect effect B = -.05, SE = .02, *95% MCCI* [-.081, -.019], z_{sobel} = -3.01, $p < .01$;
Panel d = divorcees, indirect effect B = .02, SE = .01, *95% MCCI* [-.001, .047], z_{sobel} = 1.59, p = .113;
Panel e = widowed, indirect effect B = .26, SE = .07, *95% MCCI* [.128, .398], z_{sobel} = 3.86, $p < .000$;
Panel f =married individuals, indirect effect B = .03, SE = .01, *95% MCCI* [.004, .051], z_{sobel} = 2.04, $p < .05$;
Panel g = divorcees, indirect effect B = .15, SE = .04, *95% MCCI* [.071, .234], z_{sobel} = 3.58, $p < .000$;
Panel h = widowed, indirect effect B = .07, SE = .02, *95% MCCI* [.033, .124], z_{sobel} = 3.14, $p < .01$;
Panel i = married individuals, indirect effect B = .03, SE = .01, *95% MCCI* [.008, .048], z_{sobel} = 2.51, $p < .05$)

Conducting a set of multilevel models which included a predictor (i.e., childhood adversity), a mediator (i.e., childhood adversity), and covariates (i.e., socio-demographics, time since the event [only for the loss groups], number of important groups and new partnership), the best fitting model for life satisfaction indicated the following results: For the between-subjects' effects, younger aged married individuals were more satisfied with life, indicating that if an individual was one year older than the population mean age, she/he was estimated to be 0.10 standardized units below the population mean on life satisfaction. In all groups, higher financial adequacy was related to higher life satisfaction (Table 4.2). In addition, having more important social groups than the average of the population and a new partner were related to higher life satisfaction for divorcees and widowers. A higher number of important groups was also positively linked to life satisfaction for the married individuals. More childhood adversity was associated to lower levels of life satisfaction across all groups. Individuals with higher than the average levels of self-continuity were more satisfied with life in all groups. For example, if a person scored one point higher than the population mean value on self-continuity (e.g., answers the self-continuity questions with "it fully applies to me" instead of "it kind of applies to me") then she/he was estimated to be 2.8 standardized units above the population average on life satisfaction for the widowed individuals.

Significant within-subjects' effects indicated that as married individuals grew older their level of life satisfaction decreased. When divorcees and widowers re-partnered, then their life satisfaction increased significantly: A one-point increase in life satisfaction was related to an increase in re-partnering by 2.3 and 3.7 standardized units for the divorcees and the bereaved individuals, respectively (i.e., 23% and 37% of the baseline between-person standard deviation). In addition, life satisfaction of divorcees showed a tendency to improve when their self-continuity increased. For the random effects, we found significant variation in the intercepts of life satisfaction and self-continuity across all groups, indicating that their

Table 4.2 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates on Life Satisfaction

	Divorced (*N* = 404)		Widowed (*N* = 325)		Married (*N* = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects						
Age	.01	.01	-.001	.01	-.01*	.003
Gender (1 = *women*)	.08	.12	.02	.11	-.07	.07
Financial adequacy	.46***	.07	.24**	.08	.33***	.05
Time since event	-.03	.03	.01	.03	-	-
Number of important groups	.16*	.07	.13*	.05	.14***	.04
New partner (0 = *no*)	.63***	.13	.38*	.16	-	-
Childhood adverse events	-.24***	.07	-.18*	.08	-.20***	.06
Self-continuity	.10^{+}	.05	.28***	.05	.16***	.04
Fixed Within-Subjects' Effects						
Intercept	3.23***	.55	4.26***	.54	5.10***	.29
Age	.06	.04	-.04	.04	-.03*	.01
Number of important groups	.04	.04	.01	.04	.02	.03
New partner	.23**	.09	.37**	.11	-	-
Self-continuity	.08^{+}	.05	-.02	.05	.05	.04
Random Effects						
Intercept life satisfaction	.88***	.07	.67***	.07	.61***	.04
Intercept self-continuity	.83***	.07	.54***	.06	.41***	.04
Residual variance life satisfaction	.44***	.03	.35***	.02	.33***	.02
Residual variance self-continuity	.34***	.02	.32***	.02	.25***	.01
AIC	5369.17		3917.76		6180.75	
-2LL (df)	5313.17 (28)		3861.76 (28)		6136.75 (22)	
Between-Subjects' Pseudo R^2	.08		.03		.08	
Within-Subjects' Pseudo R^2	.21		.06		.02	
ρ	.67		.66		.65	

Notes: df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 4.3 Multilevel Mediational Models with Fixed and Random Effects of Within- and Between-Subjects Covariates on Social Loneliness

	Divorced (*N* = 404)		Widowed (*N* = 325)		Married (*N* = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects						
Age	-.01	.01	.01	.01	.002	.003
Gender (1 = *women*)	-.38***	.10	-.13	.13	-.16*	.06
Financial adequacy	-.14*	.06	-.04	.08	-.20***	.05
Time since event	.03	.03	.03	.03	-	-
Number of important groups	-.20***	.06	-.07	.07	-.20***	.04
New partner (0 = *no*)	-.46***	.12	.13	.19	-	-
Childhood adverse events	.18**	.06	-.06	.09	.26***	.06
Self-continuity	-.08+	.05	-.80***	.05	-.09*	.04
Fixed Within-Subjects' Effects						
Intercept	2.00***	.48	2.37***	.62	1.11***	.27
Age	-.08*	.03	-.04	.04	-.02*	.01
Number of important groups	-.01	.03	-.05	.03	-.004	.03
New partner	-.09	.08	-.09	.11	-	-
Self-continuity	-.01	504	.03	.05	.03	.04
Random Effects						
Intercept social loneliness	.88***	.07	.85**	.32	.61***	.04
Intercept self-continuity	.65***	.06	.67***	.07	.39***	.03
Covariance of Intercepts	-	-	.54*	.24	-	-
Slope self-continuity	.08*	.03	-	-	-	-
Residual variance social loneliness	.31***	.02	.31***	.02	.26***	.01
Residual variance self-continuity	.35***	.02	.32***	.02	.25***	.01
AIC	5102.21		3838.36		5943.08	
-2LL (df)	5044.21 (29)		3780.36 (29)		5899.08 (22)	
Between-Subjects' Pseudo R^2	.18		.16		.10	
Within-Subjects' Pseudo R^2	.17		.66		.17	
ρ	.74		.73		.70	

Notes: df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $*p < .05$; $**p < .01$; $***p < .001$.

levels varied significantly among individuals. Lastly, individuals varied across measurement points regarding their average level of life satisfaction, as indicated by the within-subjects random variance across groups. Similar findings were observed for the within-subjects' random variance of self-continuity.

4.3.3 Covariates' Effects of Mediational Analysis for Social Loneliness

The ICC for the fully unconditional model was ρ = .66 for the divorced, ρ = .58 for the widowed, and ρ = .64 for married individuals. For the between-subjects' effects, the following findings were significant: Divorced and married women felt less socially lonely than men (Table 4.3). Not having financial adequacy and fewer important social groups were also associated to feeling more socially lonely for the divorced and married groups. As an example, if the number of important groups that a divorced individual had was higher than the population average by 1, he/she was estimated to feel 2.0 standardized units less socially lonely than the population mean value. In addition, divorcees without a new partner had higher levels of social loneliness than re-partnered ones. Divorced and married individuals with higher childhood adversity felt more socially lonely, while for the widowed childhood adversity was not linked to social loneliness. Lower levels of self-continuity were related to higher levels of social loneliness in all groups.

Considering the within-subjects' effects the following findings were significant: As divorcees and married individuals grew older, they felt less socially lonely. For example, a decrease by one unit in social loneliness score was associated with an increase in age by 0.8 standardized units. This effect was not observed in the widowed group. No other within-subjects' effect was significant for social loneliness. For the random effects, the random intercepts varied significantly across groups, indicating that there was significant variability in social loneliness levels between individuals. Similar findings were observed for the random intercepts of self-continuity. The random intercepts of social loneliness and self-

continuity covaried significantly for the widowed. In addition, we found a significant variation in the slope of self-continuity for the divorcees, suggesting that divorcees differed regarding how self-continuity changed from one another over time and that individuals with a higher average value of self-continuity would experience a stronger increase in its levels over time than other with a lower average value. The within-subjects' random variance for social loneliness was significant in all groups, indicating that individuals varied across measurement points regarding their average level of social loneliness. Similar findings were observed for the within-subjects' random variance for self-continuity.

4.3.4 Covariates' Effects of Mediational Analysis for Emotional Loneliness

The ICC for emotional loneliness in the fully unconditional model was ρ = .66 for the divorced, ρ = .62 for the widowed, and ρ = .58 for married individuals. Considering the between-subjects' effects, findings indicated that older aged married individuals felt more emotionally lonely than younger ones (Table 4.4). For divorcees, less financial adequacy was related to higher emotional loneliness levels. Divorcees and married individuals with fewer important social groups felt more emotionally lonely, while divorcees and widowers with a new partner experienced lower levels of loneliness. In addition, childhood adversity was negatively linked to emotional loneliness for widowed and married individuals, but not for the divorcees. As an example, if a widowed individual reported feeling one-point more emotionally lonely than the population average value, he/she was estimated to be 2.4 standardized units above the population mean on childhood adversity. Lower levels of self-continuity were related to stronger feelings of emotional loneliness in all groups.

For the within-subjects' effects, when divorced and widowed individuals found a new partner their levels of emotional loneliness significantly decreased: An increase in the partnership status, here represented as having re-partnered, was associated with a decrease in

Table 4.4 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates on Emotional Loneliness

	Divorced (*N* = 404)		Widowed (*N* = 325)		Married (*N* = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects						
Age	.003	.01	.001	.01	.01*	.002
Gender (1 = *women*)	-.22^{+}	.12	-.09	.09	.07	.05
Financial adequacy	-.14*	.06	-.10	.07	-.04	.04
Time since event	-.03	.03	-.03	.03	-	-
Number of important groups	-.26***	.06	-.06	.04	-.12***	.03
New partner (0 = *no*)	-.57***	.13	-.26*	.13	-	-
Childhood adverse events	.06	.07	.24***	.06	.23***	.04
Self-continuity	-.63***	.04	-.23***	.04	-.09**	.03
Fixed Within-Subjects' Effects						
Intercept	2.90***	.53	1.51***	.44	0.19	.21
Age	-.02	.04	.03	.03	.01	.01
Number of important groups	-.04	.03	.02	.03	.03	.02
New partner	-.28***	.07	-.45***	.10	-	-
Self-continuity	-.02	.04	-.01	.04	-.001	.03
Random Effects						
Intercept emotional loneliness	.86**	.29	.67***	.07	61.***	.04
Intercept self-continuity	.88***	.07	.35***	.04	.23***	.02
Covariance of Intercepts	.58*	.26	-	-	-	-
Residual variance emotional loneliness	.31***	.02	.26***	.02	.17***	.01
Residual variance self-continuity	.34***	.02	.32***	.02	.25***	.01
AIC	4991.55		3634.45		5273.30	
-2LL (df)	4933.55 (29)		3578.45 (28)		5229.30 (22)	
Between-Subjects' Pseudo R^2	.09		.10		.15	
Within-Subjects' Pseudo R^2	.30		.43		.18	
ρ	.74		.72		.78	

Notes: df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

emotional loneliness by 2.8 and 4.5 standardized units for the divorcees and the bereaved, respectively. No other within-subjects' effect was observed for emotional loneliness. For the random effects, there was significant variability in emotional loneliness' levels between individuals as indicated by the random intercepts. We found similar results for the random intercepts of self-continuity across groups. In addition, we found a significant covariance between the intercept of emotional loneliness and the intercept of self-continuity for the divorced. The within-subjects' random variance for emotional loneliness was significant in all groups, indicating that individuals varied across measurement points regarding their average level of emotional loneliness. We further identified similar findings for the within-subjects' random variance of self-continuity.

4.4 Discussion

Addressing an important gap in the literature, the present study investigated whether self-continuity mediated the link between childhood adversity and well-being in the context of later-life divorce and bereavement. Findings indicated differential mediational patterns for the divorced, widowed and married groups, that further varied depending on the well-being outcome: Self-continuity mediated the link between childhood adversity and emotional loneliness for the divorcees, while for the other two groups (i.e., bereaved and married) it mediated the links between childhood adversity and all well-being outcomes tested. To our knowledge, this is the first study that has confirmed the mediating role of this identity mechanism, linking distal life events with later life well-being after intimate partner loss. In addition, the differences between the marital status groups were also related to the other predictors that were included in the models, such as number of important groups for emotional loneliness (e.g., less groups related to higher emotional loneliness in divorcees and married) and age for life satisfaction (e.g., being younger was related to being more satisfied

with life for married individuals). In addition, we identified within-subjects associations for re-partnered status and age with the well-being outcomes. For instance, individual and time-specific decline in emotional loneliness and increase in life satisfaction was associated with having found a new partner in divorcees and widow(er)s. Lastly, it is of note that the between-subjects and the within-subjects effects that were observed lead to similar conclusions regarding the direction of effects: For example, the link between age and life satisfaction was negative for the married individuals, not only as a function of change (i.e., an increase in age relates to a decrease in life satisfaction) but also as a difference from the population mean value (i.e., individuals who are older than the population average age they tend to be less satisfied with life). This study was able to test associations in two different levels of analysis between the independent variables and the outcomes, resulting in a better understanding of the underlying mechanisms of within person change and between persons differences.

4.4.1 Self-Continuity Is Beneficial for Well-Being in Later Life

Individuals with a stronger perception of self-continuity felt more satisfied with life and less socially and emotionally lonely. These findings were observed for divorcees and bereaved, but also for married individuals who served as the control group of this study. However, these results differed depending on whether individuals had lost their partner through divorce or bereavement, as divorcees were only found to benefit from self-continuity when they were feeling emotionally lonely compared to socially lonely or unsatisfied with life. These findings are in line with previous research indicating that adaptation to partner loss differs between those having experienced a divorce and partner's death (Pudrovska & Carr, 2008). Given that this is the first study to identify the beneficial relationship between self-continuity and well-being indicators after critical life events, such as divorce and

bereavement, with longitudinal data, our findings add to the knowledge on the role of self-continuity, adding to a better theoretical understanding of its usefulness as a coping means. As this beneficial relationship remained even after controlling for other event-related factors (i.e., time since event) or lack of resources (i.e., financial inadequacy, few social groups, no re-partnering) that could make the individuals feel more vulnerable, findings also offer a potential valuable application in the therapy context. This can be also supported by the 2-levels hierarchical modeling of the study, as we found that individuals with a stronger sense of self-continuity compared to the population average value had a better well-being, however, the increase in self-continuity levels was not significantly associated with an increase in well-being. These findings may indicate that the age-associated increase of self-continuity (Lampraki et al., submitted) may not be enough to increase well-being. Therefore, the help of mental health experts may be mostly needed in times of critical life events in order to further enhance this age-normative increase of self-continuity.

Apart from proximal event-related factors and resources, this study aimed at investigating the distal effect of childhood adversity on later life well-being. In all groups, higher childhood adversity was related to lower levels of self-continuity and to worse well-being outcomes in later life. However, when self-continuity was added in the models the relationship with the well-being outcomes became weaker or even disappeared, except for life satisfaction and social loneliness in the divorcees. These findings add to the research regarding the mechanism of self-continuity in channeling the effect of childhood adversity on well-being in later life, after divorce or bereavement. Being the first study to investigate this relationship in the context of a life crisis (e.g., divorce) or in marriage longitudinally, the results point to the importance of identity mechanisms contributing to long-term effects of distal life circumstances such as childhood adversity on well-being (Grotevant et al., 2017; Markovitch et al., 2017; Turner & Lloyd, 1995).

While self-continuity was related to changes or differences in life satisfaction and social loneliness in widowed and married individuals, this was not the case for divorced individuals. In social loneliness for divorcees, we only found that the rate of change in self-continuity differed among individuals and that those who in general felt more self-continuity tended to increase its levels with time. These findings indicate that divorcees with a stronger sense of self-continuity are more benefitting from the age-normative increase than other individuals who in general experience a less strong sense of self-continuity. For emotional loneliness, divorcees with higher than the-population-average levels of self-continuity felt less emotionally lonely and having experienced a difficult childhood was no longer associated with emotional loneliness. This beneficial effect of self-continuity seems particularly important as divorcees felt more emotionally lonely than the widowed and the married. In line with previous research (McCarthy & Maughan, 2010, Whisman, 2006), these findings indicate that losing an intimate partner through divorce may be especially difficult for those having experienced adversity earlier in life, as it impacts negatively one's perception of self-continuity. These results add to previous research on adaptation to divorce (Lampraki, Jopp, Spini, & Morselli, 2019) with respect to that well-being is influenced not only by distal and proximal critical life events, but also by identity mechanisms. Protective effects also existed for individuals whose partner had deceased: widow(er)s experiencing more self-continuity felt less socially lonely and childhood adversity did no longer play a role for their social loneliness.

The differential mediational patterns point out that self-continuity is more related to the emotional rather than the social component of loneliness or the global appreciation of life in the divorcees and to the social loneliness in the bereaved. However, widowers resembled more to the married individuals than the divorcees: Self-continuity mediated the relationship between childhood adversity and all well-being outcomes in both the married and the

widowed individuals, while for the latter, self-continuity fully channeled the effects for social loneliness. The death of a beloved life partner, apart from the emotional instability that it may inflict, it can also be considered as a loss of a long-time social partner (van Baarsen, 2002). Widowers may have to stop social activities that were linked to their deceased partner, further reducing their social network.

Our findings also point out that self-continuity is beneficial for well-being not only in times of crisis, including partner loss, but also in long-term marriages, adding to the literature regarding the positive effects of self-continuity on well-being (Atchley, 1989; McAdams, 2011). Long-term married individuals may benefit even more from self-continuity than divorcees as they experience stability in their personal domain for a long period of time, leading to more positive well-being outcomes in later life. These differential effects contribute to filling the gap regarding how and under which circumstances childhood adversity may impact advanced-age well-being and the role of identity mechanisms when confronted with partner loss (or not).

4.4.2 Limitations

Despite the contribution of this paper regarding the distal and proximal effects of adverse events on well-being in later life and how this link is mediated by self-continuity, there are some limitations worth mentioning. The longitudinal nature of the large data allowed us to follow participants during their adaptation to partner loss. However, only a small portion of our sample experienced the actual partner loss during the study, making it impossible to investigate pre- and post-loss levels of self-continuity and well-being. In the future, it will be worth examining the same research question prospectively with a large sample of married individuals that may experience partner loss during the study period. Another limitation of our study is that we could not consider whether individuals had

experienced other critical life events in their life course, such as chronic illnesses or job losses that may have had an influence on self-continuity and well-being.

4.4.3 Conclusion

In conclusion, self-continuity mediates the link between childhood adversity and well-being. However, the extent to which it is a full or partial mediation depends on the type of loss experienced and the specific well-being outcome. Divorcees seem to be more affected from childhood adversity than bereaved and married individuals, which has an impact on the extent to which they benefit from self-continuity in times of crises. In addition, individuals who feel more self-continuity are less emotionally lonely after divorce, while widowers feel less socially lonely. This differentiation regarding loneliness facets and event experienced offers guidance to mental health professionals on how intervene in order to reinforce self-continuity when individuals are struggling with adaptation to partner loss in later life: In divorce, supporting individuals to find or reinforce emotionally meaningful relationships will promote identity stability and therefore emotional loneliness will be alleviated. In bereavement, individuals who are motivated to initiate or enhance social interactions will reinforce their sense of self and feel socially embedded.

Table 4.5 Key Messages of Chapter 4

- Self-continuity is a psychological resource channeling the effects of childhood adversity on wellbeing after critical life events in later life.
- When individuals have fewer childhood adverse events they feel more continuity of the self in later life and therefore have better psychological well-being outcomes after partner loss and in marriage.
- Maintaining high levels of social-continuity is beneficial for overcoming loneliness and feeling more satisfied with life.
- Social-continuity (i.e., important social groups) and individual ties (i.e., new partner) are both beneficial for feeling less lonely in later life after divorce or widowhood.

- Adapting to partner loss is experienced differently for divorced and bereaved individuals.

- Social loneliness decreases with time, regardless of adverse events experienced, but this decrease stabilizes in later life, while married individuals seem to be more protected than the divorced and widowed individuals.

5 General Discussion

In this chapter, we will first give an overview of structure and content of the dissertation. Then, we will highlight the main contributions according to the research questions and aims presented in the introduction of this work and, last, we will draw the attention to future research and conclusions.

5.1 Overview

In the introductory chapter (Chapter 1) of this thesis we outlined the gaps in the literature and the main aims that we wanted to address. First, in Chapter 2, we were interested in investigating whether self-continuity changes as a function of age and how it is enhanced in later life by examining life course critical events and resources, following the dynamic view on life course vulnerability (Spini et al., 2017). In this chapter, we our sample comprised of divorcees, bereaved and married (control) individuals, and we addressed our research question from a longitudinal perspective. Second, following the findings presented in Chapter 2, in *Chapter 3*, we examined whether specific psychological and social resources had differential beneficial effects on feelings of social loneliness depending on the specific post-divorce phases of adaptation in the second half of life. Specifically, we were interested in investigating concurrently the effects of personality, multiple important group memberships and self-continuity on levels of social loneliness, and the extent to which their effects differed when considering an earlier vs later time period since the partner loss. In the final research chapter (Chapter 4), we examined the extent to which self-continuity in later life mediated the link between distal critical events, namely childhood adverse events, and later life well-being, such as life satisfaction, and social and emotional loneliness, in divorce and bereavement.

5.2 Summary

We will now summarize the most important findings of this work and how they contribute to filling the research gaps presented in Chapter 1.

Critical Life Events in Later Life Have an Impact on Levels of Self-Continuity but Not on Its Increase Over Time

Self-continuity increases as a function of age, regardless of the loss of an intimate partner in later life. These findings confirm, with longitudinal evidence and in a real-life context, previous cross-sectional experimental research (Hershfield, 2011; Rutt & Löckenhoff, 2016a; Sedikides, et al., 2016), suggesting that in the second half of life individuals experience a stronger sense of self-continuity. However, it is worth mentioning that the married individuals maintained significantly higher levels of self-continuity over time, compared to divorcees and widowers, and that the three groups showed similar levels of self-continuity only at the age of 85 and older. Therefore, experiencing a critical life event, such as divorce or bereavement, in later life may have a negative impact on the levels of self-continuity but not on its increase through time. Another finding that is worth mentioning is that individuals who were older than the population average they tended to have a stronger perception of self-continuity than younger aged individuals. These findings show that self-continuity increases with age but also that older aged individuals experience it more strongly, in line with the developmental theory of Erikson (1968). This is the first study to investigate concurrently differences in levels and change in self-continuity with quantitative longitudinal data. Nevertheless, one limitation of these findings that should be mentioned is that the sample of divorced individuals was younger than the other two, which had as a consequence that the number of divorcees that had already entered old or very old age was much smaller compared to the widowed and married individuals.

In addition to the findings above, we also found that the only event-related factor that explained differences in levels of self-continuity in divorcees and widow(er)s was time since the event. Having had more time since the event was related to a stronger sense of self-continuity, independent of the effects of aging. These findings indicate that, similarly to the observation that individuals find back their initial levels of well-being after some time since the event has passed (Amato, 2000; Booth & Amato, 1991; Lucas, 2007), identity needs time to bounce back to its pre-event levels. One implication of this study worth mentioning is that we have not assessed levels of self-continuity before the event and, therefore, we cannot make safe estimations about whether self-continuity reached its pre-event levels or whether it remained to lower levels than before.

Childhood Adversity Is a Key Determinant of Later Life Self-Continuity.

Our research also focused on the effect of distal critical life events, such as childhood adversity, on later life self-continuity. Notably, childhood adversity relates to differences in self-continuity levels, with higher adversity being linked to lower levels of self-continuity in later life, across all marital status groups. Therefore, childhood adversity can be considered as a factor associated with latent vulnerability, while critical life events trigger manifest vulnerability. Although previous research has investigated the influence of childhood adverse events on the development of other identity mechanisms and their lasting effects in adulthood (Grotevant et al., 2017; Markovitch et. al, 2017), this is the first work, to our knowledge, to examine their effect on self-continuity in later adulthood. These findings advance the research in the field of childhood adversity and how it affects identity across the life course. Being traumatized by such events in childhood has a long-lasting impact on how individuals perceive themselves and their life stories. With these findings we pointed out another aspect of influence on continuity theory that applies to normal and non-normal aging circumstances

and that should always be considered when designing interventions for individuals who experience difficulties adjusting to change. At the same time, it is worth mentioning that in the present work we only looked at the impact of the frequency of childhood events on levels of self-continuity in later life and not of the accumulation of adverse childhood events, which can provide a different angle in the investigation of the phenomenon.

An additional finding that is worth mentioning regarding adverse childhood events and their connection to later life self-continuity is that divorcees had experienced more childhood adversity compared to the widowed and married individuals. This is in line with previous research in the field of divorce, indicating that individuals with childhood traumas tend to divorce more often than others (Whisman, 2006) and that they have lower levels of well-being compared to the married individuals even before they get married in the first place (Lucas, 2005). In addition, as shown by McCarthy and Maughan (2010), individuals having experienced childhood adversity tend to develop less secure styles of attachment in adult life, leading to negative relationship outcomes, which may explain why we observed that divorcees reported higher childhood adversity compared to the married and the widowed individuals. These findings indicate that trauma related to childhood negative experiences maintain its distal influence on later life well-being and, as shown in this work, on later life identity, too, especially for the divorced individuals. This is the first study to show that childhood adversity predispositions divorcees to experience lower levels of self-continuity than the married in advanced age.

Optimistic Outlook Towards Life Is Beneficial for Self-Continuity While Forming a New Romantic Relationship Is Not.

This thesis focused also on life attitudes and resources that may help in maintaining self-continuity, despite the critical life events experienced. Being more hopeful in later life

was related to higher self-continuity for widowed and married individuals. In addition, divorcees with less childhood events and a stronger sense of hope experienced higher self-continuity. In the married, more hope and older age were also related to stronger feelings of self-continuity. These findings are in line with the theories on possible selves and self-continuity (Atchley, 1989; McAdams, 2011), and indicate that an optimistic outlook towards life may act as a resource for self-continuity for all three marital status groups. This study adds to the literature about the determinants of self-continuity, by showing how optimistic outlook relates to self-continuity under the scope of cumulative adversity during the life course.

Although we expected that a new partnership would re-establish or reinforce the sense of self-continuity after the loss of a partner, as the individual regains the lost role of the spouse, we did not find such an effect. This is the first study to show that finding a new partner after divorce or bereavement in later life does not contribute in one's sense of self-continuity. One possible explanation could be that after long-term marriages, even if divorcees find a new romantic partner it does not necessarily mean that they "replace" their ex-partner with a new one. The ex-partner is a person with whom they spent a great part of their life, possibly the father or the mother of their children. The new relationship does not have the same characteristics and properties of the old one, leading the person to feel discontinuity rather than continuity of the self. It is worth mentioning though that we had only one item available that assessing new partnerships, namely partnership status. It would have been of value to assess other aspects of the new partnership, such as its duration, quality or importance for the participants in order to have a better understanding why having gained a new partner did not contribute to self-continuity.

Using the conceptualization of Atchley (1989) regarding self-continuity, we were able to test all aspects of influence on self-continuity as described in the definition of the term,

connecting past, present and future aspects of life. It is of note that our findings point to the same direction as the work of Klein and Janoff-Bulman (1996), that individuals with a difficult childhood tend to focus more on the past and less on the future: A reported in chapter 2, individuals with a difficult childhood tended to also have a less optimistic outlook towards life leading to a weaker perception of self-continuity.

Self-Continuity Is a Psychological Resource for Social Loneliness Later in the Process of Adapting to Divorce.

In addition to questions regarding the development of self-continuity across the life course when considering critical life events and resources, we were also interested in investigating when self-continuity is most needed. Our findings indicate that self-continuity is beneficial for social loneliness at a later stage of adaptation to divorce, while the individual relies more on personality aspects when closer to divorce, in line with Caspi and Moffit (1993). These findings add to our knowledge about non-normative later life events that challenge mental well-being, and the role of self-continuity in the adaptation process. Self-continuity had never been considered as a psychological resource during adaptation to partner loss, represented in this study by social loneliness, and in separate adaptation phases. Our research highlights that individuals need time to feel like their usual self after divorce and that this sense of self "serenity" is linked to a stronger perception of being socially embedded. To our knowledge this is the first study to link self-continuity with social loneliness. A valuable addition to this PhD would have been to also replicate these findings for the bereaved individuals as well as for men and women separately. However, when splitting the sample in those having experienced widowhood more recently versus later the subsamples were not well balanced, causing problems of statistical power. Similar implications were observed for gender analysis in the divorced group.

Self-Continuity Acts as a Coping Mechanism on the Link Between Childhood Adversity and Well-Being in Later Life

Last, we investigated whether the effect of childhood adversity on later life well-being was channeled by self-continuity and more specifically, whether individuals with less adverse events in childhood developed a stronger sense of self-continuity in later life which, in divorce or bereavement, helped the individual adapt better to the event. Our findings confirmed our expectations in all marital groups that self-continuity would channel the effects of childhood adversity on well-being, despite the differential predictive patterns identified. Specifically, divorcees having experienced a negative childhood felt more emotionally lonely after divorce, but when their feelings of self-continuity were taken into account this link was not significant anymore. However, this mediational pattern was evident only for emotional loneliness and not for social loneliness or life satisfaction, for which childhood adversity remained the most significant predictor. These findings indicate that self-continuity in the context of later life divorce is more important for alleviating the effect of childhood adversity on emotional loneliness than on the other two types of well-being examined. One possible interpretation of this result may be that individuals with adverse childhood events tend to develop less functional attachment styles and feel less continuity of self, which could make it more difficult to find a new partner after divorce and fulfill their need for emotional closeness. For the widowed and married individuals, the mediational patterns resembled to each other. For all well-being outcomes, self-continuity mediated the link with childhood adversity. However, the effect was stronger for social loneliness in the widowed, as self-continuity fully mediated the link. The fact that widowed individuals were slightly older than their divorced counterparts may explain the mediational effects on both social and emotional loneliness: Experiencing loss in a later stage in life can challenge more

life domains, such as trying to find new social partners who can help alleviate social loneliness. These findings show that for each well-being outcome self-continuity acted as a coping mechanism with stronger or weaker effects. To our knowledge, this is the first study to show, with longitudinal evidence, this function of self-continuity in the context of cumulative adversity in later life. These results have also important theoretical implications as we found that self-continuity may indeed increase with age, which seems to be a natural consequence of growing older, however, in order for it to be beneficial for individuals who struggle with adaptation and have a traumatic past, mental health professionals should try to enhance it more through therapy. While our findings confirm self-continuity theory, supporting the idea that self-continuity has substantial benefits in the context of normal aging, as shown by its positive effects on married and bereaved individuals, we were further able to show that self-continuity is an important coping resource in off-time events, such as divorce. Although individuals overcoming divorce had clearly more difficulty to adapt compared to their bereaved counterparts, self-continuity had notable positive effects on adaptation to divorce, extending self-continuity beyond its initial frame. Future research should take into account these differences in order to address the loss of the partner with greater accuracy.

Valued Group Memberships Is a Psychological Resource Only Later in Adaptation to Divorce.

Complementing our investigation of self-continuity, we also considered social-continuity in this work, which reinforces a sense of social identity. Within our study, social-continuity was represented by the number of important social group memberships. In the third chapter, we investigated when important group memberships become beneficial in the adaptation process to divorce within a cross-sectional perspective. Being a member of a

valued social group was related to feeling less socially lonely, but similar to self-continuity, only in a later phase of adaptation, namely after two years to five years of marital dissolution. In contrast to other studies which suggest an unconditional (i.e., at any time during the adaptation process) positive impact of multiple social groups on adaptation to health-related outcomes (Haslam et al., 2008), our findings show that for divorce these groups relate to lower levels of social loneliness only later in the adaptation process. From a theoretical point of view, the fact that valued social groups did not relate to better well-being may suggest that social groups can provoke ambivalent feelings. They provide the individual with support in times of need but may also come with unpleasant social comparisons: For instance, everyone else is married, but I no longer have a partner. Also, they may enhance the life stress if the individual tries to keep up with the activities and the engagements of the group. Therefore, when investigating critical life events and social groups' participation it would be important to consider the adaptation phase and timing since the event. These findings also add to the literature regarding how beneficial social participation can be in the context of later-life critical events in parallel to self-continuity. Having investigated both aspects of the continuity theory of normal aging by Atchley (1989) at the same time as psychological resources, our results show that the two mechanisms complement each other. When divorcees had high levels of self-continuity and more memberships in valued social groups, they felt less lonely in a later adaptation phase of divorce and they did not differ from the married. In contrast, lack of both psychological resources was detrimental for social loneliness in all adaptation phases to divorce and in the married. To our knowledge this is the first study to explore both identity mechanisms concurrently and with quantitative data. However, we should mention that in the first wave of data that we used for conducting this analysis, we had not assessed the year that individuals joined their social groups. This restriction in the data did not allow

us to control for whether individuals were members of these groups for a long time or whether they joined them after their divorce.

Improved Well-Being in Later Life Is Not Related to Increasing but to Overall Higher Levels of Social-Continuity.

In *Chapter 4*, in order to investigate the longitudinal relation between the two aspects of continuity, representing the two sides of the "coin" regarding continuity theory, we included social-continuity as a predictor of well-being. Our findings show that in all marital groups changes in social-continuity had no impact on any well-being outcome. It was rather the overall level of social-continuity that predicted individual differences across all well-being outcomes for divorcees and married individuals, and only for life satisfaction for the widowed. These findings indicate that both aspects of continuity relate to better well-being outcomes after critical life events in later life and that individuals, even if they increase their level of social participation, they do not necessarily feel better (e.g., feeling less lonely). This finding may suggest that individuals who, before the loss, had no important groups and chose to engage in social groups only after the loss of their partner, did not benefit from their increase in social participation. It is, rather, that individuals who maintain over time an elevated number of important groups experience the psychological benefits of this type of continuity. In other words, social group membership may be beneficial for some people but not for everyone, and other research suggest that such individual differences may be related to personality traits (Pudrovska & Carr, 2008). In line with our previous assumption, increased social participation may also burden the individual with additional responsibilities and roles that overwhelm her/him during adaptation times. Last, social-continuity in this work captures not only the quantity of social groups but also the quality, giving a more concrete representation of who really feels socially embedded. Focusing only on the quantity

or only on the quality of social groups may give misleading results regarding loneliness, as, for instance, individuals may participate in multiple groups but still feel alone. In sum, these findings extend our knowledge regarding how the two identity mechanisms complement each other and how they both help in improving well-being in the context of critical life events in later life.

Individual Ties Relate to Better Well-being During Adaptation to Later Life Critical Events

Specific social partners with whom study participants had emotionally meaningful one-to-one interactions, such as having someone to count on for dealing with the critical event, or a new romantic partner in later post-divorce phases, were found to be related to lower levels of social loneliness, in Chapter 3. For the short-term divorced, however, children and a new partnership were not associated to feeling less socially lonely. In addition to these findings, in Chapter 4, we found that having a new partner was beneficial for life satisfaction and emotional loneliness in both divorcees and widowers. These findings indicate that specific social partners, with whom individuals have one-to-one interactions, can promote well-being after divorce or widowhood, in contrast to other critical life events for which individual interactions (e.g. having a confidant) did not help overcome psychological distress (Lefrançois, Leclerc, Hamel, & Gaulin, 2000). In addition, our results also point out that personal ties are associated with better adaptation in all post-divorce phases, while important social groups were only advantageous later in the adaptation process. In other types of critical life events it has been found that individual and group social engagement may both relate to better well-being outcomes after critical life events in later life. Thus, by showing that specific social partners may be more beneficial under specific circumstances, such as early in adaptation to divorce, than valued group memberships for well-being, our results add to the literature regarding the importance of individual ties and group engagement during critical

life events. Being able to rely to specific partners for support in difficult transition times may be a better choice for struggling individuals, as these individual ties do not require the commitment to goals and activities of a social group. Therefore, in early adaptation times divorcees should get prompted to reach for support and companionship from specific friends and not, necessarily to engage in social groups.

Married Individuals Feel Less Socially Lonely as They Age

As indicated by our findings in Chapters 3 and 4, with advancing age married individuals feel less socially lonely than earlier in their life, complementing previous studies on the subject of loneliness and aging (Dykstra, 2009). Our work found both cross-sectional and longitudinal evidence for this association of age with loneliness in the particular marital status group. For the divorcees, instead, we found in the cross-sectional study (Chapter 3) that the age of neither the short- nor the long-term divorced groups did explain any variance in social loneliness. However, in Chapter 4, where we investigated the data longitudinally, we were able to show that divorcees, similar to the married, experienced a decrease in their levels of social loneliness as they advanced in age. It is of note that we did not observe such association between social loneliness and age for the widowed individuals. This finding may indicate that widowers, who were overall more advanced in age than the other two marital status groups, may experience a stabilization of their levels of social loneliness, in line with socio-emotional selectivity theory (Carstensen, Fung, & Charles, 2003) suggesting that older aged individuals are more able to emotionally regulate their feelings. However, our findings in Chapter 4 also demonstrated that divorcees and widow(er)s have overall higher levels of social loneliness than the married do, indicating that even though a decrease or a stabilization takes place, they remain significantly more socially lonely than their married counterparts. To sum up, social loneliness may decrease as individuals advance in age, regardless of their

adverse experiences, but this decrease may reach a specific limit, after which it becomes stable in later life, and married individuals seem more protected compared to the other two marital status groups.

Table 5.1 Summarizing Table of Main Findings

How is self-continuity enhanced?

- Self-continuity increases with age, however, divorcees and widow(er)s feel less continuous than their married counterparts across time.
- Individuals with less childhood adverse events have a stronger sense of self-continuity in later life.
- Having an optimistic outlook towards life helps in maintaining and/or increasing self-continuity in later life.
- Forming a new romantic relationship after the loss of the partner does not enhance self-continuity.

When is self-continuity mostly needed?

- Self-continuity is mostly needed in later life.
- Self-continuity is more helpful in later stages of adaptation to divorce than in earlier ones, when individuals rely more to well-established personality traits in order to feel less socially lonely.

How does self-continuity help in adaptation to partner loss?

- Self-continuity is a psychological resource channeling the effects of childhood adversity on wellbeing after critical life events in later life.
- When individuals have fewer childhood adverse events they feel more continuity of the self in later life and therefore have better psychological well-being outcomes after partner loss and in marriage.

When is social-continuity mostly needed?

- Similar to self-continuity, social-continuity is beneficial in a later stage after divorce.
- Social-continuity complements self-continuity, as high levels in both mechanisms relate to better well-being, while their concurrent absence leads to higher vulnerability.
- Maintaining and not increasing the levels of social-continuity is beneficial for overcoming loneliness and feeling more satisfied with life.
- Social-continuity and individual ties are both beneficial for feeling less lonely in later life after divorce or widowhood.

5.3 Possible Applications in the Field

This work also proposes a way for mental health care professionals to tackle later life vulnerability triggered by critical events across the life course. Design of intervention studies for individuals having experienced the loss of their partner should consider how to reinforce these two identity mechanisms. For example, Gonçalves and Ribeiro (2012) propose the reconceptualization of the self through self-narratives and moments of innovation, facilitating self-continuity. Having identified how the perception of self-continuity develops across the life course and the factors that may enhance it, it is interesting to consider therapies that aim in helping identity formation and that may be suitable for children and adolescences who have experienced childhood adversity. Art therapy has been found to be particularly useful in confronting traumatic experiences by expressing oneself through drawing and creative writing (Mauro, 1998; Jobin, 2010). Addressing early in the life course problems of self-continuity will have long lasting effects on the person's identity and well-being, helping them to adapt better to later life critical events.

Nevertheless, it is worth considering how to help adults maintain or increase their levels of self- and social-continuity when they actually need these identity mechanisms in order to cope with later life critical events. Brodbeck, Berg and Znoj (2017) have developed an internet-based self-help intervention that helps individuals overgoing complicated grief after divorce or bereavement to accept the new reality and adapt. It would be interesting to address continuity issues in such therapeutic contexts, as individuals can follow the intervention in their own pace and from home. By helping the grieving individuals to attend the social groups that they value they will maintain social-continuity, while prompting them to talk about their life story will help them integrate in it the critical life and, consequently enhance self-continuity. Lastly, interventions should aim also in reinforcing optimism

especially in divorcees with a difficult childhood, as they seem to be the group that is mostly affected in terms of later life self-continuity.

5.4 Future Work

Despite the multiple contributions of this PhD work in the field of continuity perceptions in later life, several questions remain unanswered in the present study, which could be addressed in the future research. One of our main goals is to explore the relationship between continuity perceptions and growth experience after trauma. It is well documented that in times of crises, individuals experience not only limitations and challenges, but they also demonstrate resilience and personal growth (Spahni, Morselli, Perrig-Chiello & Bennett, 2015). However, self-continuity in the context of partner loss in later life has not yet been investigated with regard to growth. It is still unknown how the perception of self-continuity after partner loss relates to the perception of personal growth, which has been found to influence ego development and well-being (Bauer, McAdams, & Pals, 2008).

Another subject that would be worth examining in more detail in the future concerns the (potentially reciprocal) associations between social-continuity and well-being. In particular it would be interesting to investigate the differences in divorcees and widowers who either become members of a specific social group right after their partner loss, but discontinue after a while, compared to those who continuously remain members of that specific group even years after adapting to their loss. Another question worth exploring would be how these two groups of individuals with ongoing vs disrupted group memberships differ from individuals who have not participated in any social group after their loss experience, as this also represents a form of continuity.

Another question that it would be interesting to address in the future is whether there are different patterns of later life self-continuity depending on the particular adverse

childhood event experienced or on the accumulation of several childhood events. For instance, having more than one type of childhood adverse events may have a different impact on later life identity mechanisms than having experienced just one. By investigating these questions we can get a clearer picture of how childhood adversity affects identity development and whether it is the frequency of traumatic events, the accumulation of different types of adversity, or perhaps the confrontation with a specific type of childhood adversity that influences to a greater extent the sense of self-continuity in later life.

Last, we would like to explore other types of events with regard to self-continuity and social-continuity, such as transition to retirement or job-loss. In addition, we would like to assess more critical life events across the life course, such as chronic health conditions or catastrophic events that may influence well-being and trigger life course vulnerability.

5.5 Conclusion

In conclusion, this thesis addressed the issue of continuity perceptions in later life as identity mechanisms that contribute to the adaptation to partner loss in later life. With advancing age and with a positive outlook towards life individuals experience stronger feelings of self-continuity, despite distal experiences (i.e., childhood adversity) that may have impacted its development. After partner loss in later life, a new romantic relationship does not enhance the perception of self-continuity. Self-continuity is mostly needed in later life, when the person reflects upon its past in order to maintain a strong sense of identity. Divorce and bereavement are highly disruptive to a person's sense of identity in later life, resulting in reduced self-continuity, which seems to remain lower compared to continuously married individuals even years after the event. Especially for divorce, a strong sense of self-continuity helps in alleviating social loneliness in a later stage of adaptation, along with social-continuity. These two perceptions of continuity seem to complement each other as

mechanisms of adaptation to divorce, after two years of marriage dissolution. In addition, increasing social group participation after partner loss is not beneficial for well-being. It is rather the maintenance of important social group memberships that has a positive impact on well-being after partner loss, pointing out the importance of social-continuity too as an identity mechanism. Finally, individuals who have experienced adversity in childhood develop a weaker sense of self-continuity in later life, which in turn affects their adaptation to critical life events, such as partner loss. Individuals with a less disruptive childhood have a stronger perception of self-continuity in later life which helps them face and overcome the negative psychological consequences of partner loss.

The findings of this thesis point out the significant role of the specific identity mechanisms when facing later life adversity, and how self-continuity, representing a less explored mechanism develops throughout the life course. Specifically, this work was able to show that self-continuity is needed not only for normative aging (e.g., marriage), as defined by Atchley in his theory of continuity (1989), but also in non-normative aging, in this case investigated through the disruptive event of divorce. We identified specific distal events that continue to influence the perception of identity even in old age and we were able to identify how these events relate not only to identity but to well-being, too. Having a longitudinal assessment of continuity in real-life circumstances, this work adds to the research conducted in experimental settings and to cross-sectional studies new findings regarding how self-continuity develops in later life. In addition, this is the first study to test self-continuity and social-continuity as complementary identity mechanisms. Lastly, this thesis was able to identify whether self-continuity is "good" or "bad" for individuals overcoming critical life events in the second half of life: A strong sense of continuity of self was related to better well-being outcomes after divorce and bereavement, but also in continuously married individuals. This final conclusion supports the dynamic view of continuity in the theory of

Atchley (1989), showing that continuity is an overarching identity mechanism that incorporates changes in the life course, creating a cohesive whole that constitutes personal identity. Future use of these findings would aim in designing interventions in collaboration with mental health professionals, that address the negative impact of life course determinants on a fragile sense of continuity, and help individuals reinforce their perceptions of self- and social-continuity in order to have a successful adaptation after partner loss.

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7 Appendix

7.1 Chapter 2

The final model for divorcees was specified according to the following equations (Raudenbush & Bryk, 2002):

Level 1: $Self\text{-}Continuity_{ti} = \beta_{0i} + \beta_{1i}(Age_{ti} - Age^{mean}_{i}) + \beta_{2i}(Health_{ti} - Health^{mean}_{i}) +$

$$\beta_{3i}(Hope_{ti} - Hope^{mean}_{i}) + r_{ti} \quad (1)$$

Level 2: $\beta_{0i} = \gamma_{000} + \gamma_{001}(Age^{mean}_{i}) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}_{i}) + \gamma_{005}(New\ partner_i) + \gamma_{006}(Hope^{mean}_{i}) +$

$\gamma_{007}(Childhood\ adverse\ events_i) + \gamma_{008}(Time\ since\ event_i) +$

$\gamma_{009}(Initiator\ status_i) + \gamma_{010}(Childhood\ adverse\ events_i \times Hope^{mean}_{i}) + u_{0i}$

$\beta_{1i} = \gamma_{10} + \gamma_{11}(Childhood\ adverse\ events_i) + u_{1i}$

$\beta_{2i} = \gamma_{20}$

$\beta_{3i} = \gamma_{30}$ (2)

Combined: $Self\text{-}continuity_{ti} = \gamma_{000} + \gamma_{001}(Age^{mean}_{i}) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}_{i}) + \gamma_{005}(New\ partner_i) + \gamma_{006}(Hope^{mean}_{i}) +$

$\gamma_{007}(Childhood\ adverse\ events_i) + \gamma_{008}(Time\ since\ event_i) +$

$\gamma_{009}(Initiator\ status_i) + \gamma_{010}(Childhood\ adverse\ events_i \times Hope^{mean}_{i}) +$

$\gamma_{10}(Age_{ti} - Age^{mean}_{i}) + \gamma_{11}(Childhood\ adverse\ events_i \times [Age_{ti} - Age^{mean}_{i}]) +$

$\gamma_{20}(Health_{ti} - Health^{mean}_{i}) + \gamma_{30}(Hope_{ti} - Hope^{mean}_{i}) +$

$u_{1i} + u_{0i} + r_{ti}$ (3)

where self-continuity was the outcome for person *i* at time *t*. In the level 1 equation, which represented the within-subject variation, β_{0i} was the individual intercept parameter, β_{1i} was the individual effect of age (β_{2i} and β_{3i} stand for health and hope respectively) and r_{ti} stood for the within-level residual. In the level 2 equation, between-subjects' variation in the mean level of self-continuity is described as a function of a fixed intercept (γ_{000}), representing the grand mean for the sample, fixed effects for the independent variables (e.g., age_{mean}; γ_{001}) and a subject-specific random intercept (u_{0i}). The random slope β_{1i} allowed us to investigate the extent to which changes in self-continuity were associated with changes in age with a subject-specific average slope coefficient (γ_{10}) and a random parameter (u_{1i}). In addition, the same equation specified how the effect of age differed for individuals with higher childhood adversity than others (γ_{11}; cross-level interaction of Childhood adverse events x Age in the combined equation). Last, the two fixed slopes for health (γ_{20}) and hope (γ_{30}) were described in equations β_{2i} and β_{3i}, respectively.

The final model for the widowed group differed from the one for divorcees: In line with differences in partner loss events (i.e., divorce vs bereavement), the variable *Initiator Status* was replaced by *Difficult Bereavement*. Also, the model only included one 2nd level interaction term (i.e., $\gamma_{010}(Childhood\ adverse\ events_i \times Hope^{mean}_i)$). The following equations specify the model:

Level 1: $Self\text{-}continuity_{ti} = \beta_{0i} + \beta_{1i}(Age_{ti} - Age^{mean}_i) + \beta_{2i}(Health_{ti} - Health^{mean}_i) +$

$$\beta_{3i}(Hope_{ti} - Hope^{mean}_i) + r_{ti} \quad (4)$$

Level 2: $\beta_{0i} = \gamma_{000} + \gamma_{001}(Age^{mean}_i) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}_i) + \gamma_{005}(New\ partner_i) + \gamma_{006}(Hope^{mean}_i) +$

$\gamma_{007}(Childhood\ adverse\ events_i) + \gamma_{008}(Time\ since\ event_i) +$

$\gamma_{009}(Difficult\ bereavement_i) + \gamma_{010}(Childhood\ adverse\ events_i \times Hope^{mean}_i) + u_{0i}$

$$\beta_{1i} = \gamma_{10} + u_{1i}$$

$$\beta_{2i} = \gamma_{20}$$

$$\beta_{3i} = \gamma_{30} \quad (5)$$

Combined: $Self\text{-}continuity_{ti} = \gamma_{000} + \gamma_{001}(Age^{mean}{}_i) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}{}_i) + \gamma_{005}(New\ partner_i) + \gamma_{006}(Hope^{mean}{}_i) +$

$\gamma_{007}(Childhood\ adverse\ events_i) + \gamma_{008}(Time\ since\ event_i) +$

$\gamma_{009}(Initiator\ status_i) +$

$\gamma_{010}(Childhood\ adverse\ events_i \times Hope^{mean}{}_i) +$

$\gamma_{10}(Age_{ti} - Age^{mean}{}_i) + \gamma_{20}(Health_{ti} - Health^{mean}{}_i) +$

$\gamma_{30}(Hope_{ti} - Hope^{mean}{}_i) + u_{1i} + u_{0i} + r_{ti} \quad (6)$

The final model for the married group also differed from the one for the divorcees: *New Partner*, *Time Since Event* and *Initiator Status* were deleted, as they referred to partner loss, while *Marriage Happiness* was added. The only interaction term that improved the model fit was the cross-level interaction between hope and age ($\gamma_{11}(Hope^{mean}{}_i \times [Age_{ti} - Age^{mean}{}_i])$). The final model for married was specified accordingly:

Level 1: $Self\text{-}continuity_{ti} = \beta_{0i} + \beta_{1i}(Age_{ti} - Age^{mean}{}_i) + \beta_{2i}(Health_{ti} - Health^{mean}{}_i) +$

$\beta_{3i}(Hope_{ti} - Hope^{mean}{}_i) + r_{ti} \quad (7)$

Level 2: $\beta_{0i} = \gamma_{000} + \gamma_{001}(Age^{mean}{}_i) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}{}_i) + \gamma_{005}(Hope^{mean}{}_i) + \gamma_{006}(Childhood\ adverse\ events_i) +$

$\gamma_{007}(Marriage\ Happiness_i) + u_{0i}$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(Hope^{mean}{}_i) + u_{1i}$$

$$\beta_{2i} = \gamma_{20}$$

$$\beta_{3i} = \gamma_{30} \quad (8)$$

Combined: $Self\text{-}continuity_{ti} = \gamma_{000} + \gamma_{001}(Age^{mean}{}_i) + \gamma_{002}(Gender_i) + \gamma_{003}(Education_i) +$

$\gamma_{004}(Health^{mean}{}_i) + \gamma_{005}(Hope^{mean}{}_i) +$

$\gamma_{006}(Childhood\ adverse\ events_i) + \gamma_{007}(Marriage\ happiness_i) +$

$\gamma_{10}(Age_{ti} - Age^{mean}{}_i) + \gamma_{11}(Hope^{mean}{}_i \times [Age_{ti} - Age^{mean}{}_i]) +$

$\gamma_{20}(Health_{ti} - Health^{mean}{}_i) + \gamma_{30}(Hope_{ti} - Hope^{mean}{}_i) +$

$u_{1i} + u_{0i} + r_{ti}$ (9)

7.2 Chapter 4

Table 7.1 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates and Interactions on Life Satisfaction

	Divorced vs Widowed vs Married (*N* =1276)		Divorced vs Widowed (*n* =729)		Divorced (*n* = 404)		Widowed (*n* = 325)		Married (*n* = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects										
Age	.01*	.002	.01	.01	.01	.01	-.001	.01	-.01*	.003
Gender (1 = *women*)	-.09^{+}	.05	.06	.08	.08	.12	.02	.11	-.07	.07
Financial adequacy	.38***	.04	.38***	.05	.46***	.07	.24**	.08	.33***	.05
Time since event	-	-	-.01	.02	-.03	.03	.01	.03	-	-
Number of important groups	.15***	.03	.16***	.04	.16*	.07	.13*	.05	.14***	.04
New partner (0 = *no*)	-	-	.56***	.10	.63***	.13	.38*	.16	-	-
Childhood adverse events	-.23***	.04	-.23***	.05	-.24***	.07	-.18*	.08	-.20***	.06
Self-continuity	.16***	.04	.10*	.05	.10^{+}	.05	.28***	.05	.16***	.04
Marital status	-.31**	.10	-.08	.19						
Self-continuity*Marital status	.06^{+}	.03	.17*	.07						
Fixed Within-Subjects' Effects										
Intercept	4.23***	.23	3.66***	.37	3.23***	.55	4.26***	.54	5.10***	.29
Age	-.004	.01	.01	.03	.06	.04	-.04	.04	-.03*	.01
Number of important groups	.01	.02	.02	.03	.04	.04	.01	.04	.02	.03
New partner	-	-	.29***	.07	.23**	.09	.37**	.11	-	-
Self-continuity	.08*	.04	.11*	.04	.08^{+}	.05	-.02	.05	.05	.04
Self-continuity*Marital status	-.03	.03	-.15*	.07						
Random Effects										
Intercept life satisfaction	.78***	.04	.81***	.05	.88***	.07	.67***	.07	.61***	.04
Intercept self-continuity	.63***	.03	.71***	.05	.83***	.07	.54***	.06	.41***	.04
Residual variance life satisfaction	.38***	.01	.40***	.02	.44***	.03	.35***	.02	.33***	.02
Residual variance self-continuity	.30***	.01	.33***	.01	.34***	.02	.32***	.02	.25***	.01
AIC	15834.55		9298.81		5369.17		3917.76		6180.75	
-2LL (df)	15784.55 (25)		9236.81 (31)		5313.17 (28)		3861.76 (28)		6136.75 (22)	
ρ	.67		.67		.67		.66		.65	
Between-Subjects' Pseudo R^2	.03		.07		.08		.03		.08	
Within-Subjects' Pseudo R^2	.07		.18		.21		.06		.02	

Notes: Marital status = *Divorced vs Widowed vs Married, or Divorced vs Widowed.* df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 7.2 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates and Interactions on Social Loneliness

	Divorced vs Widowed vs Married (N =1276)		Divorced vs Widowed (n =729)		Divorced (n = 404)		Widowed (n = 325)		Married (n = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects										
Age	-.003	.002	-.001	.01	-.01	.01	.01	.01	.002	.003
Gender (1 = *women*)	-.17***	.05	-.29***	.08	-.38***	.10	-.13	.13	-.16*	.06
Financial adequacy	-.16***	.03	-.11*	.05	-.14*	.06	-.04	.08	-.20***	.05
Time since event	-	-	.03	.02	.03	.03	.03	.03	-	-
Number of important groups	-.16	.03	-.16***	.04	-.20***	.06	-.07	.07	-.20***	.04
New partner (0 = *no*)	-	-	-.30***	.04	-.46***	.12	.13	.19	-	-
Childhood adverse events	.21***	.04	.11*	.05	.18**	.06	-.06	.09	.26***	.06
Self-continuity	-.09*	.04	-.30***	.04	-.08^{+}	.05	-.80***	.05	-.09*	.04
Marital status	.11	.09	.08	.18	-	-	-	-	-	-
Self-continuity*Marital status	-.02	.03	-.06	.07	-	-	-	-	-	-
Fixed Within-Subjects' Effects										
Intercept	1.43***	.20	2.10***	.34	2.00***	.48	2.37***	.62	1.11***	.27
Age	-.03***	.01	-.06*	.02	-.08*	.03	-.04	.04	-.02*	.01
Number of important groups	-.01	.02	-.03	.02	-.01	.03	-.05	.03	-.004	.03
New partner	-	-	-.09	.06	-.09	.08	-.09	.11	-	-
Self-continuity	.02	.04	-.04	.05	-.01	.04	.03	.05	.03	.04
Self-continuity*Marital status	-.003	.03	.08	.07	-	-	-	-	-	-
Random Effects										
Intercept self-continuity	.52***	.03	.64***	.10	.65***	.06	.67***	.07	.39***	.03
Covariance intercepts self-continuity*social loneliness	-	-	.22	.20	-	-	.54*	.24	-	-
Intercept social loneliness	.78***	.04	.81***	.05	.88***	.07	.85**	.32	.61***	.04
Covariance self-continuity intercept*self-continuity slope	-	-	-.002	.03	-	-	-	-	-	-
Covariance social loneliness intercept*self-continuity slope	-	-	-.02	.04	-	-	-	-	-	-
Slope self-continuity	.04*	.01	.05**	.02	.08*	.03	-	-	-	-
Residual variance social loneliness	.30***	.01	.32***	.01	.31***	.02	.31***	.02	.26***	.01
Residual variance self-continuity	.30***	.01	.33***	.01	.35***	.02	.32***	.02	.25***	.01
AIC	15173.08		8946.80		5102.21		3838.36		5943.08	
-2LL (df)	15121.08 (26)		8876.80 (35)		5044.21 (29)		3780.36 (29)		5899.08 (22)	
ρ	.72		.72		.74		.73		.70	
Between-Subjects' Pseudo R^2	.14		.14		.18		.16		.10	
Within-Subjects' Pseudo R^2	.32		.25		.17		.66		.17	

Notes: Marital status = *Divorced vs Widowed vs Married, or Divorced vs Widowed.* df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 7.3 Multilevel Models with Fixed and Random Effects of Within- and Between-Subjects Covariates and Interactions on Emotional Loneliness

	Divorced vs Widowed vs Married (*N* =1276)		Divorced vs Widowed (*n* =729)		Divorced (*n* = 404)		Widowed (*n* = 325)		Married (*n* = 547)	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Fixed Between-Subjects' Effects										
Age	.001	.002	.01	.004	.003	.01	.001	.01	.01*	.002
Gender (1 = *women*)	.05	.04	-.15^{+}	.08	-.22^{+}	.12	-.09	.09	.07	.05
Financial adequacy	-.11***	.03	-.14*	.04	-.14*	.06	-.10	.07	-.04	.04
Time since event	-	-	-.01	.02	-.03	.03	-.03	.03	-	-
Number of important groups	-.11***	.02	-.14***	.04	-.26***	.06	-.06	.04	-.12***	.03
New partner (0 = *no*)	-	-	-.44***	.09	-.57***	.13	-.26*	.13	-	-
Childhood adverse events	.23***	.03	.10*	.05	.06	.07	.24***	.06	.23***	.04
Self-continuity	-.08*	.03	-.49***	.04	-.63***	.04	-.23***	.04	-.09**	.03
Marital status	.36***	.08	.40*	.16	-	-	-	-	-	-
Self-continuity*Marital status	-.07*	.03	-.16**	.06	-	-	-	-	-	-
Fixed Within-Subjects' Effects										
Intercept	0.63	.18	2.06***	.33	2.90***	.53	1.51***	.44	0.19	.21
Age	-.01^{+}	.01	.002	.02	-.02	.04	.03	.03	.01	.01
Number of important groups	.02	.02	-.01	.02	-.04	.03	.02	.03	.03	.02
New partner	-	-	-.35***	.06	-.28***	.07	-.45***	.10	-	-
Self-continuity	.002	.03	-.03	.04	-.02	.04	-.01	.04	-.001	.03
Self-continuity*Marital status	-.01	.03	.03	.06	-	-	-	-	-	-
Random Effects										
Intercept emotional loneliness	.78***	.04	.81***	.15	.86**	.29	.67***	.07	61.***	.04
Intercept self-continuity	.39***	.02	.63***	.15	.88***	.07	.35***	.04	.23***	.02
Covariance of Intercepts	-	-	.40*	.17	.58*	.26	-	-	-	-
Residual variance emotional loneliness	.25***	.01	.29***	.01	.31***	.02	.26***	.02	.17***	.01
Residual variance self-continuity	.30***	.01	.34***	.02	.34***	.02	.32***	.02	.25***	.01
AIC	14382.05		8632.46		4991.55		3634.45		5273.30	
-2LL (df)	14332.05 (25)		8568.46 (32)		4933.55 (29)		3578.45 (28)		5229.30 (22)	
ρ	.76		.74		.74		.72		.78	
Between-Subjects' Pseudo R^2	.07		.09		.09		.10		.15	
Within-Subjects' Pseudo R^2	.70		.40		.30		.43		.18	

Notes: Marital status = *Divorced vs Widowed vs Married, or Divorced vs Widowed.* df = *degrees of freedom.* AIC = *Akaike information criterion*; –2LL = *–2 log likelihood*, relative model fit statistics. ρ = *Intraclass Correlation Coefficient*. Unstandardized estimates and standard errors are presented. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.