Chapter 15
Changes in Lone Mothers' Health: A Longitudinal Analysis

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Introduction

In all industrialized countries the number of lone parent households has increased in the last decades. This family structure is particularly interesting in international research due to the special economic and social situation of lone mothers. Since the 1990s, there is a well-established literature for United Kingdom, USA, Canada, and also for the Scandinavian countries. In contrast, research in Germany has focused comparably late on lone mothers, investigating their economic disadvantages. This is somehow surprising as the structure of German families has changed substantially over the last three decades. Census information for Germany suggests a growing rate of lone parent families. In 2012, almost 20% of all families living with underage children (in Germany children are underage until they are 18 years old) are headed by lone parents (Statistisches Bundesamt 2013, p. 104). There is an increase of lone parent households from 1.28 million in 1996 to 1.6 million in 2012[1] (Statistisches Bundesamt 2010, p.7).

Not only the increasing rate of lone mothers in Germany is a concern, but also their increasing economic disadvantage and the loss of wealth, especially after marriage dissolution. Studies analyzing the labor market participation of lone mothers argue that time allocation is apparently more challenging for lone mothers because they cannot rely on intra-household division of labor (Hancioglu and Hartmann 2013). The percentage of lone mothers working full-time is higher when compared to mothers with partners, but the majority of lone mothers in Germany are unable to work or have a part-time employment because of a lack of affordable childcare (Ott et al. 2011). Lone mothers in Germany are frequently at higher risk of unemployment

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[1] German Census is collecting lone parents since 1996, therefore there is no existing previous Census data on lone parent households in Germany.

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and rely on welfare above the country's average (Hancioglu and Hartmann 2013; Lietzmann 2009). These empirical findings are congruent with international research results (e.g. Francesconi and Van der Klaauw 2007; Vandecasteele 2011).

At the same time, it seems that economic and social disadvantages affect lone mother's health negatively. As a result, there has been an increasing interest in studying health consequences associated with lone motherhood. Results from interdisciplinary studies suggest that lone mothers suffer disproportionally higher rates of physical and mental illness as compared to their partnered counterparts (e.g. Butterworth 2004; Crosier et al. 2007; Wang 2004). To gain deeper insights of health inequalities in Germany, analyzing potential health consequences for lone mothers is of special interest for research and for German social policy.

Current research on the health of lone mothers explores the differences in health outcomes between lone and partnered mothers. However, most of these comparisons are based on cross-sectional data and therefore are not able to consider the dynamics of the life course of a lone mother and to identify causes and effects of health statuses. Moreover, lone mothers in cross-sectional data are often described as a homogeneous group without considering that they may face a different duration of lone mother episodes.

To our knowledge this is the only research analyzing lone mothers' health in Germany using longitudinal data. This chapter aims to overcome the described weaknesses of identifying effects of being in lone parenthood. Therefore, we use panel data to explore individual changes of lone mothers' health. Further, we examine the health consequences of becoming a lone mother focusing on the questions: (1) Does transition into lone motherhood has negative effects on health? (2) Which determinants affect women's health satisfaction and well-being within the transition into lone motherhood?

This chapter is structured as follows. Section "Literature review" reviews the literature relevant to this topic. Section "Data & methods" describes the data and our methodological approach as well as the measured health outcomes and potential determinants of lone mother's health. Section "Results" presents descriptive findings and the results of multivariate analysis. Section "Concluding remarks" concludes.

Literature Review

Previous studies in this field concentrate on the effects of being married versus being non-married. These studies analyze the influence of marital status on health and suggest that married men have less ill health, better psychological health, and adopt healthier lifestyles than non-married men, whereas the results for women are inconsistent (e.g.. Macintyre 1992; Wyke and Ford 1992; Benzeval 1998).

Further, these studies use mainly two different explanations. The 'health selection' thesis argues that unhealthy people are less likely to get married or more likely

to divorce, whereas the 'social causation' thesis suggests a protecting effect of marriage due to material resources or social support (Benzeval 1998).

Following the 'social causation' thesis, Zick and Smith (1991) were able to find an association between marital status and mortality. They focus on women who became lone mothers due to divorce or widowhood and argue that people who are divorced or widowed have experienced extensive stress during the transition into lone motherhood, which may put them at a relatively greater risk of dying prematurely. However, other studies add restrictive perspectives on the advantages resulting from marriage. The results indicate that interpersonal stress in close social relationships may produce or exacerbate psychological distress in forms of depression, anxiety and loneliness (Mittelmark et al. 2004).

Recent studies concentrate less on marital status and compare partnered mothers (regardless of whether they are married or not) with lone mothers. The examined health outcomes differ in a great extent but can be subordinated in the two main groups of a) mental disorders and b) physical health.

The diverse mental disorders are mostly discussed with the different levels of stress between lone mothers and partnered mothers. Research examines higher prevalence of depressive symptoms (Cooper et al. 2008; Crosier et al. 2007; Lipman et al. 1997; Wang 2004); psychological distress (Franz et al. 2003); anxiety disorders (Afifi et al. 2006), and lower levels of well-being (Bull and Mittelmark 2009) for lone mothers compared to partnered mothers. In literature, stress is seen as the main determinant of lone mothers' mental disorders and is explained by the double burden faced by lone mothers due to sole financial responsibility and single-handed child care (Fritzell et al. 2007, Hope et al. 1999).

The results for physical health show that lone mothers have a higher risk for cardiovascular diseases (Young et al. 2005), chronic illness (Wickrama et al. 2006) and ill health (Roos et al. 2005) compared to mothers with a partner. Furthermore, studies report generally a worse health for lone mothers than for mothers with a partner (Curtis 2001, Westin and Westerling 2006).

These health disadvantages are mostly explained by the special economic circumstances of lone mothers. For example, Fritzell and Burström (2006) demonstrate in a trend analysis for Sweden that the prevalence rate of *less than a good* self-rated health increased for lone mothers during the 1990s compared to the 1980s. They explain the result as being caused by increased financial problems among Swedish lone mothers and outline that the economic strain has a substantial explanatory value.

This result corresponds with most other studies showing that both mental and physical health disparities between lone mothers and partnered mothers may be attributed to differences in certain socioeconomic factors (e.g. Curtis and Phipps 2004; Taragosz et al. 2003). Furthermore, Hope et al. (1999) showed a higher risk of psychological distress among lone mothers with financial hardship and unemployment. Additionally, there is also a higher prevalence of mental disorders for lone mothers who rely on welfare benefits (Coiro 2001). Further, the combination of poverty and the sole responsibility of childcare may culminate with social

isolation, which is known as an important determinant of depression symptoms (Taragosz et al. 2003).

In addition, cross-national comparative studies analyze the health status in relation to welfare state arrangements. Fritzell et al. (2012) explore that lone mothers suffer financial hardship and worse health than partnered mothers irrespective of the different policy regimes seen in Italy, Great Britain and Sweden. On the contrary, Curtis and Phipp (2004) illustrate in a comparative analysis between Canada and Norway that Canadian lone mothers have a lower health status than partnered mothers, whereas there are no significant health differences were found in Norway. They attribute their findings to the more generous social benefits in Norway than in Canada which seem to absorb the socioeconomic differences between lone mothers and partnered mothers. Further, Burström et al. (2010) point out that the social context and social policies influencing the health of lone mothers could be the consequence of social position and environmental influences.

Unlike these studies, this chapter concentrates on lone mothers' health in a longitudinal perspective using panel data for the German population. We focus on determinants affecting mothers' health in the stressful period during the transition into lone motherhood and the first years of being a lone mother.

Data & Methods

Data Management and Methods

This study is based on data from the German Socio-Economic Panel (SOEP), a representative longitudinal dataset of the German population. The SOEP was initiated in 1984 and since then it has been conducted annually. It includes, among other things, detailed personal, social and economic information for all household members above the age of 16 (Wagner et al. 2007).

The SOEP contains all the necessary information to identify lone mothers (Hancioglu and Hartmann 2013). The data includes important information of household structure and socioeconomic factors as well as sociodemographic backgrounds of individuals. We define lone mothers as women who live with their underage child or children in a household without a partner. Our sample consists of respondents who were in lone motherhood at some point during the panel period between 1984 and 2011 ($N = 2006$).

By this definition, we observe more than one lone mother episode for some women during their life span. To identify the effects of transition into lone motherhood, we concentrate on the first episode. As a necessary condition of the data, we exclude left-censored lone mother episodes. That means that we only consider women who became lone mothers during the observation period, and do not consider women who were already lone mothers when they entered the study.

An additional requirement is that lone mothers with an observed transition into lone motherhood need to be observed for at least 3 years prior to the beginning of the lone mother episode. This restriction is of special importance because, according to the set-point model (Lucas 2007), measured outcomes can be affected by life-events (e.g. marriage, separation or death of partner) even certain years prior to the life-event. Therefore, we assume that health outcomes become worse just before the lone mother episode begins.

We take 3 years *(t−3)* before the lone mother episode begins into consideration (t_0 is the first interview as a lone mother) to account for changes in health outcomes that might have occurred prior to the start of lone motherhood as well as to ensure a valid sample size. The lone mother episodes end with the end of lone motherhood or the end of the period of observation.

To explore individual health variation, we use longitudinal fixed-effects (FE) linear regression models. Health satisfaction and well-being are our dependent health variables which are measured on an interval scale and are linearly dependent on several predictor variables (Allison 2009, p.6). The notation of our basic model for y_{it} is:

$$y_{it} = \mu_i + \beta_{it} + \gamma z_i + \alpha_i + \epsilon_i$$

We have lone mothers (i = 1,…, n), which are measured at least for four times (t = 1, 2, 3, 4, …, n); y_{it} describes our dependent outcome variables; x_{it} represents variables which vary over time, and z_i represents variables which do not vary over time. The use of fixed effects models reduces potential biases present in most cross-sectional studies analyzing effects on health. These biases result from the inability to control for omitted characteristics which influence health status and are correlated with other characteristics (Ruhm 1996); α_i and ϵ_i represent error terms, whereas ϵ_i is different for each individual at each time, α_i varies across individuals, but not over time. For ϵ_i, there is a constant variance assumption made for all *i* and *t* (Allison 2009, p.6). With the assumption of statistical independence of α_i and ϵ_i correlations between α_i and z_i are allowed[2].

Variables

The key measures that we use, and are available for all individuals in the SOEP data for all years, are self-assessed health satisfaction and self-assessed life satisfaction. The answers are recorded on a scale of 0 (poor) to 10 (excellent). The heath satisfaction variable closely corresponds to the measures of self-assed health (Frijters et al. 2005), which is commonly used as a predictor for assessing respondent's health status and is considered to be a good proxy for future morbidity and mortality

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[2] For more detailed formal explanation of fixed effects methods see Allison (2009) and Wooldridge (2009).

(DeSalvo et al. 2006; Idler and Benyamini 1997). Life-satisfaction is a tool especially used in psychology. For example, Diener et al. (1999) and Lucas (2007) measure well-being by this cognitive measure, depicting satisfaction with life in general (Schimmack 2008).

The main independent variables of interest are two dichotomous variables. To distinguish between negative effects due to separation and effects which come along with being a lone mother, we generate a *separation dummy* and a *lone mother dummy*. Separation, which is attributed in the literature as a life-event (Lucas 2007) is derived from household composition. We identify a separation with a move-out from a joint household. For those lone mothers with a changed household composition, we create the *separation dummy* variable (1 = 1 year before separation). The aim of this variable is to check the robustness of the effects due to lone motherhood. We assume that the stressful situation begins shortly before the actual lone mother episode starts. The *separation dummy* allows us to capture those negative anticipation effects of separation.

To identify effects of lone motherhood and to consider the dynamics of lone mothers during the transition into lone motherhood, we generate a *lone mother dummy*. This variable measures years before the lone motherhood (= 0) and years in lone motherhood (= 1).

To use the potential of panel data, we use longitudinal information describing the duration of lone motherhood, assuming that changes in health outcomes can be explained by an increasing duration of lone motherhood. We also assume that stable (non-marital) partners may have an effect on lone mothers' health. Therefore we also consider lone mothers' partners who are not living in the same household.

Further, we control for sociodemographic and socioeconomic variables (see Table 15.1 for the overview of the control variables). We divide mother's age in six categories: (i) 17 to 25, (ii) 26 to 30, (iii) 31 to 35 (reference category), (iv) 36 to 40, (v) 41 to 45 and (vi) 46 to 61. Children's age is also distinguished into six categories following differences in institutional constraints. We consider the age of the youngest child: (i) new born: 0, (ii) pre-nursery from 1 to 3, (iii) kindergarten from 4 to 6, (iv) elementary school from 7 to 10 (reference category) and two categories for secondary schooling (v) from 11 to 15 and (vi) from 16 to 18 years. In addition, we control for the number of children in household because we assume that more than one child is associated with a higher burden. Both number and age of the children are included via a set of mutually exclusive variables indicating how many children are living in the household and how old the youngest child is.

We include two variables representing socioeconomic characteristics of the households – changes in net equivalent income and mothers' employment status. Changes in net equivalent income refer to the income of the respective previous year, and are categorized by its standard deviation[3]. Five categories are used to describe changes: (i) major deterioration, (ii) small deterioration, (iii) constant level (reference category), (iv) small improvement and (v) major improvement. We distinguish employment status into five different categories: (i) full-time, (ii) part-time,

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[3] The intervals are ascending: $x < 1{,}5\sigma$; $-1{,}5\,\sigma$ to $-0{,}5\sigma$; $-0{,}5\sigma$ to $0{,}5\sigma$; $0{,}5\sigma$ to $1{,}5\sigma$ and $x > 1{,}5\sigma$.

Table 15.1 Variables overview

Lone mothers' age	%
17–25	6.4
25–30	11.9
31–35	18.4
36–40	23.6
41–45	21.1
46–61	18.5
Age of youngest child	**%**
0	2.1
1–3	12.1
4–6	16.3
7–10	21.6
11–15	29.2
16–18	18.7
Number of children in household	**%**
1	54.5
2	32.8
3 and above	12.7
Changes net equivalent income	**%**
Major deterioration	11.8
Small deterioration	11.1
Stable	60.5
Small improvement	14.2
Major improvement	2.4
Employment status	**%**
Full-time	35.6
Part-time	25
Education	1.4
Marginally	5.1
Not-employed	32.9

Source: SOEP 1984–2011 (pooled data)

(iii) marginal employment, (iv) vocational training and (v) not employed (reference category). Marginal employment is according to German social security law an employment relationship with a maximum monthly wage of 450€. The characteristic of being not employed includes besides individuals that are unemployed and looking for a job, also military and community service, maternal leave, and women in partial retirement who are not working anymore.

Further, we control for the utilization of (institutional) childcare, which plays a decisive role for lone mothers' labor market participation (Ott et al. 2011) and might have relieving effects on lone mothers' health. Childcare is controlled by a dichotomous variable which is only considered for women whose youngest child is younger than 6 years old.

Results

Descriptive Analysis

As a first step of analysis, we examine in Figs. 15.1 and 15.2 differences in *health satisfaction* and *well-being* between lone mothers and partnered mothers. Figure 15.1 shows the health satisfaction from *poor* (=0) to *excellent* (=10). The majority of lone and partnered mothers report their health satisfaction as good or excellent (from 7 to 10) whereas the percentages of moderate and poor self-reported health are relatively low for both groups. However, the figure shows that within the low values (from 0 to 5) depicting moderate or poor health satisfaction, lone mothers have a higher percentage than partnered mothers. In contrast, lone mothers have lower percentages than partnered mothers within the higher values (from 7 to 10), which illustrates in the sum a significant worse self-assessed health satisfaction of lone mothers compared to partnered mothers.

Figure 15.2 shows the well-being of lone and partnered mothers from *poor* (=0) to *excellent* (=10). Group differences are higher in Fig. 15.2 than in Fig. 15.1. Compared to partnered mothers, lone mothers are less likely to rate their well-being as good or excellent (from 7 to 10) whereas they rate their well-being more often as poor to moderate (from 0 to 6) than mothers with partners. As previously shown for health satisfaction, there is a very small percentage of mothers reporting poor well-being. However, in the sum lone mothers rate their well-being worse compared to partnered mothers. In general, the results are consistent with previous research. Lone mothers seem to be at a disadvantage regarding their health outcomes
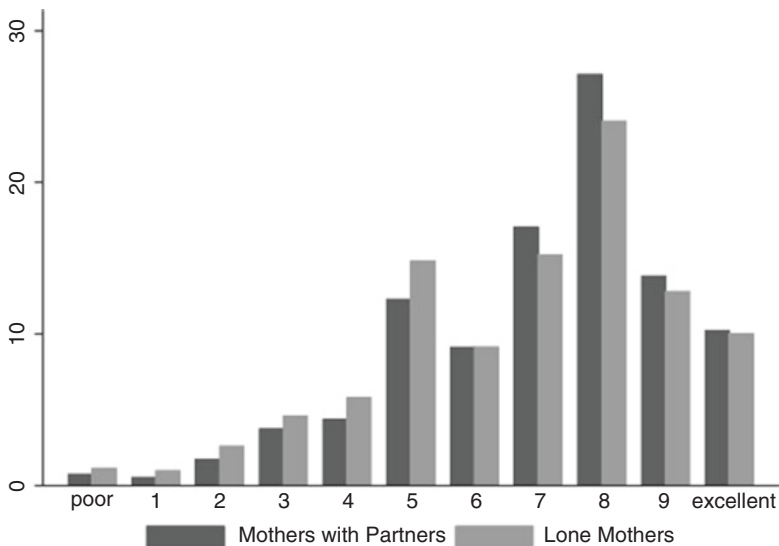
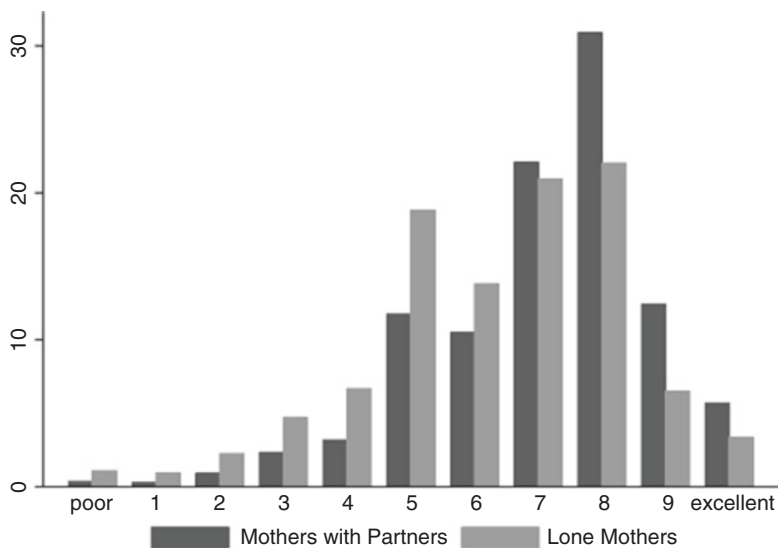**Fig. 15.1** Health satisfaction (SOEP 1984–2011 pooled data)

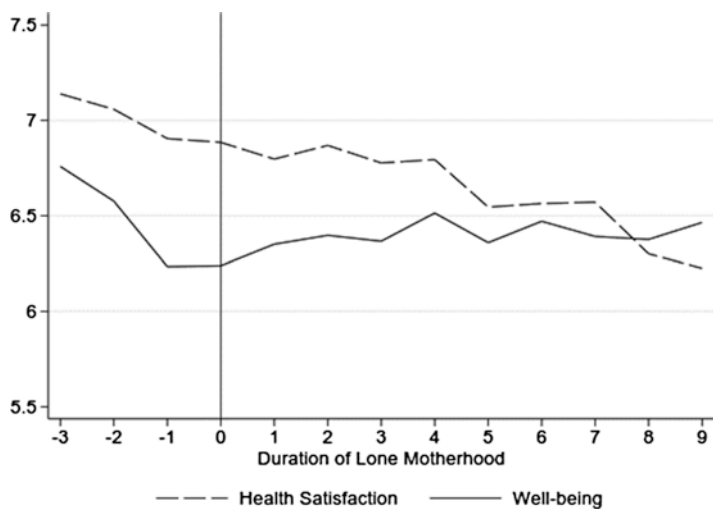**Fig. 15.2** Well-being (SOEP 1984–2011 pooled data)

Fig. 15.3 Health satisfaction and well-being over lone mother episode (SOEP 1984–2011)

compared to partnered mothers and group differences within well-being are higher than within health satisfaction.

In the second part of the analysis, we focus on lone mothers' health in a longitudinal perspective and consider changes prior to becoming a lone mother and during the lone mother episode. Figure 15.3 demonstrates the development of health satisfaction and well-being by comparing mean values over lone mother episodes and

prior to lone mother episodes. The beginning of a lone mother episode is highlighted with a vertical line (t0).

Figure 15.3 shows that, even some years before women become lone mothers, there is a decreasing trend in both health outcomes. There is an especially strong decline in the mean values of well-being 1 year before separation. When observing mean values over time, two major development emerge. First, while there is a clear decreasing trend for health satisfaction, well-being values slowly increase and reach a plateau over the lone mother episode. It can be stated that Fig. 15.3 shows an increase of well-being values accompanied by separation (*t-1* and *t0*). And second, for health satisfaction the increase, which comes along with separation, is not as strong as for well-being; however there is a general decline of health satisfaction over the lone mother episode.

Multivariate Analyses

In the next part of analyses, we examine the effect of being in lone motherhood on health satisfaction and well-being after controlling for separation, duration of lone motherhood, squared duration of lone motherhood and mother's age. The aim of this longitudinal fixed-effects (FE) linear regression for the time period from 1984 to 2011 is to distinguish between the effects on health satisfaction and well-being due to separation (Amato 2010, Lucas 2007, Andreß et al. 2003), and the effects due to being a lone mother, which imply a special economic and social situation. To explore the robustness of the lone mother effect, we include all lone mothers with an observed separation.

Table 15.2 presents the fixed effects estimation for 688 women. The observation window varies for these women between 4 years (3 years prior to lone motherhood and 1 year in lone motherhood) and 27 years. The results coincide with the descriptive results, suggesting that separation affects mothers' health satisfaction and well-being (c.f. Figure 15.3) negatively. We find a strong significant negative effect of separation for health satisfaction and well-being.

Moreover, we also identify a strong significant negative effect of being in lone motherhood on well-being and a weak significant effect on health satisfaction. The results demonstrate that for well-being the effect of lone motherhood is even stronger than the ´separation effect`.

Further, the effects of duration in lone motherhood differ between the two health outcomes. Whereas the length of the episode has a significant negative effect on health satisfaction, the results show a positive effect of duration of lone motherhood on well-being. In other words, with an increasing length of the lone mother episode, the effects on health satisfaction are negative, but in contrast, the effects are positive for well-being.

In the second model (Table 15.3), we concentrate on changes within the transition into lone motherhood. Therefore, we consider 3 years prior to lone motherhood and the first 3 years in lone motherhood. In addition to model I (Table 15.2), we

Table 15.2   Lone mother and separation effects (fixed effects regression)

	Health satisfaction		Well-being	
	Coef.	S.E.	Coef.	S.E.
Lone mother dummy	−0.21*	(0.09)	−0.67***	(0,08)
Separation dummy	−0.31***	(0.08)	−0.51***	(0.08)
Duration of lone motherhood	−0.08*	(0.04)	0.11**	(0.03)
(Duration of lone motherhood)²	0.00	(0.00)	−0.00	(0.00)
Mothers' age (reference: 31–35)				
17–25	−0.08	(0.23)	0.12	(0.21)
25–30	0.01	(0.14)	0.14	(0.13)
36–40	0.11	(0.12)	0.05	(0.11)
41–45	0.28	(0.19)	0.10	(0.17)
46–61	0.19	(0.27)	−0.18	(0.25)
Constant	7.04***	(0.08)	6.64***	(0.07)
Observations	4572		4572	
Cases	688		688	
R^2	0.02		0.03	

Standard errors are reported in parentheses. *** $p < 0.001$ ** $p < 0.01$, * $p < 0.05$
Source: SOEP 1984–2011

control for changes in net equivalent income and for the employment status describing the socioeconomic factors of the households. Further, we add the age of the youngest child, the number of children living in the household, the use of childcare, and the variable stable partner (who is not living in the same household) to illustrate a potential social support.

As shown in model I, we also identify negative effects on health satisfaction and well-being for the transition into lone motherhood due to separation and lone motherhood. Not surprisingly, there are positive effects of a stable partner on both health outcomes, since a new partner offers emotional support and can indicate the end of lone motherhood. Beyond this, a new partner could also be the reason for the separation from previous partner and could cause a soon end of the episode in lone motherhood. There are no effects for mothers' age, the age for the youngest child and the number of children living the household observable.

Table 15.3 examines how the socioeconomic characteristics that come along with a transition into lone motherhood affect health satisfaction and well-being. It shows that a loss in wealth is associated with a decline in lone mothers' well-being. This result is highly significant for major deterioration in the net equivalent income affecting lone mothers' well-being. Further, this model shows that a full-time and part-time employment have significantly positive effects on well-being. This might be a sign that women who actively participate in the labor market might be able to reach a certain level of financial independence.

Surprisingly, childcare has a negative effect on both outcomes. This effect can be explained with insufficient coverage of institutional childcare, especially in the 80s and 90s. Since, there is no information about the quantity and quality of childcare existing for all years; we are not able to differentiate between different possibilities of institutional and private childcare.

Table 15.3 Health changes within the transition into lone motherhood (fixed effects regression)

	Health satisfaction		Well-being	
	Coef.	S.E.	Coef.	S.E.
Lone mother dummy	−0.38*	(0.16)	−0.44**	(0.15)
Separation dummy	−0.29***	(0.08)	−0.50***	(0.07)
Stable partner	0.24*	(0.11)	0.34**	(0.11)
Mothers' age (reference: 31–35)				
17–25	−0.10	(0.27)	0.01	(0.27)
25–30	0.10	(0.17)	0.13	(0.15)
36–40	−0.06	(0.15)	0.15	(0.17)
41–45	0.14	(0.23)	0.15	(0.24)
46–61	0.18	(0.36)	−0.07	(0.33)
Age of youngest child (reference: 7–10)				
0	0.23	(0.35)	0.12	(0.31)
1–3	0.13	(0.21)	−0.24	(0.21)
4–6	0.09	(0.19)	−0.15	(0.18)
11–15	−0.01	(0.17)	0.05	(0.17)
16–18	−0.32	(0.21)	−0.13	(0.21)
Number children in household (reference: 1)				
2	−0.19	(0.19)	0.22	(0.20)
3 and above	−0.36	(0.29)	−0.03	(0.29)
Changes net equivalent income (reference: Stable)				
Major deterioration	−0.02	(0.11)	−0.38***	(0.11)
Small deterioration	0.04	(0.11)	−0.22*	(0.11)
Small improvement	0.12	(0.10)	−0.07	0.09
Major improvement	−0.37	(0.20)	−0.02	(0.18)
Employment status (reference: Not employed)				
Full-time	−0.20	(0.14)	0.35**	(0.13)
Part-time	−0.01	(0.11)	0.25*	(0.11)
Vocational training	−0.45	(0.33)	0.03	(0.28)
Marginally	0.07	(0.16)	−0.03	(0.16)
Childcare	−0.25*	(0.10)	−0.23*	(0.10)
Constant	7.28***	(0.16)	6.47***	(0.17)
Observations	3530		3530	
Cases	688		688	
R^2	0.02		0.05	

Standard errors are reported in parentheses. *** $p < 0.001$ ** $p < 0.01$, * $p < 0.05$
Source: SOEP 1984–2011

Concluding Remarks

Previous research has shown that lone mothers suffer disproportionally higher rates of physical and mental illness compared to partnered mothers. Our work reinforces previous findings that show group differences in health satisfaction and well-being between lone and partnered mothers. Unlike other studies, we focus on the identification of intra-individual health changes. In the first step of multivariate analyses, we differentiate between separation effects and effects due to lone motherhood. This differentiation is relevant because we argue that lone mothers' health is poorer than partnered mothers' health and this is not caused by a separation but is rather caused by the special economic and social situation of lone mothers.

Moreover, the estimation considers the duration of lone motherhood, which is associated with opposite effects on the health outcomes. We find a positive impact of a prolonged duration of lone motherhood on well-being. We interpret this result using the set-point model that suggests that after a life-event (here separation), well-being adjusts after a certain period of time and can reach the observed level prior to the separation. Lone mothers seem to adjust to their new social status and financial situation which affects positively their well-being as they deal with stress. In contrast, the opposite is true for health satisfaction as bringing up a child, alone and with reduced material and social resources, may affect health satisfaction. Therefore, we suggest that health worsens with the length of time someone has been a lone mother. This explanation follows the idea of ´social causation`. Even after using longitudinal data we cannot exclude the possibility that some lone mothers could have a lower chance of finding a new partner because of their poor health. This could be a reason for worsening health satisfaction over the duration of lone motherhood.

In the second model, we focus on the transition into lone motherhood and find significant effects of socioeconomic factors on health outcomes. The results highlight that a loss in wealth affects well-being negatively. The access to employment (full-time, part-time) can solve the problem of a major deterioration of income. However, we assume that lone mothers with full-time employment have other arrangements aside from institutional childcare. This assumption is confirmed with the result that childcare has a negative effect on health satisfaction and well-being. Access to universal childcare services for lone mothers in Germany should be a top priority for family policies. The implementation of a reliable and extended childcare (covering off-peak times) might bring an improvement in the health satisfaction and well-being of lone mothers and might also ensure the proper balance between work and family.

References

Afifi, T. O., Cox, B. J., & Enns, M. W. (2006). Mental health profiles among married, never-married, and separated/divorced mothers in a nationally representative sample. *Social Psychology and Psychiatric Epidemiology, 41*, 122–129.

Allison, P. D. (2009). *Fixed effects regression models*. Los Angeles: Sage.

Amato, P. R. (2010). Research on divorce: Continuing trends and new developments. *Journal of Marriage and Family, 72*(3), 650–666.

Andreß, H.-J., Borgloh, B., Güllner, M., & Wilking, K. (2003). *Wenn aus Liebe rote Zahlen werden: Über die wirtschaftlichen Folgen von Trennung und Scheidung*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Benzeval, M. (1998). The self-reported health status of lone parents. *Social Science & Medicine, 46*(10), 1337–1353.

Bull, T., & Mittelmark, M. B. (2009). Work life and mental wellbeing of single and non-single working mothers in Scandinavia. *Scandinavian Journal of Public Health, 37*(6), 562–568. https://doi.org/10.1177/1403494809340494.

Burström, B., Whitehead, M., Clayton, S., & Fritzell, S. (2010). Health inequalities between lone and couple mothers and policy under different welfare regimes – The example of Italy, Sweden and Britain. *Social Science and Medicine, 70*, 912–920.

Butterworth, P. (2004). Lone mothers' experience of physical and sexual violence: Association with psychiatric disorders. *British Journal of Psychiatry, 184*, 21–27.

Coiro, M. J. (2001). Depressive symptoms among women receiving welfare. *Women & Health, 32*(1–2), 1–23.

Cooper, C., Bebbington, P., Meltzer, H., Bhugra, D., Brugha, T., Jenkins, R., Farrell, M., & King, M. (2008). Depression and common mental disorders in lone parents: Results of the 2000 National Psychiatric Morbidity Survey. *Psychological Medicine, 38*(3), 335.

Crosier, T., Butterworth, P., & Rodgers, B. (2007). Mental health problems among single and partnered mothers. *Social Psychiatry and Psychiatric Epidemiology, 42*(1), 6–13.

Curtis, L., & Phipps, S. (2004). Social transfers and the health status of mothers in Norway and Canada. *Social Science & Medicine, 58*(12), 2499–2507.

Curtis, L. J. (2001). Lone motherhood and health status. *Canadian Public Policy, 27*(3), 335–356.

DeSalvo, K. B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. *Journal of General Internal Medicine, 21*(3), 267–275.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276–302. https://doi.org/10.1037/0033-2909.125.2.276.

Franz, M., Lensche, H., & Schmitz, N. (2003). Psychological distress and socioeconomic status in single mothers and their children in a German city. *Social Psychiatry and Psychiatric Epidemiology, 38*(2), 59–68.

Francesconi, M., & Van der Klaauw, W. (2007). The socioeconomic consequences of "in-work" benefit reform for British lone mothers. *The Journal of Human Resources, 42*(1), 1–31.

Frijters, P., Haisken-DeNew, J. P., & Shields, M. A. (2005). The causal effect of income on health: Evidence from German reunification. *Journal of Health Economics, 24*, 997–1017.

Fritzell, S., & Burström, B. (2006). Economic strain and self-rated health among lone and couple mothers in Sweden during the 1990s compared to the 1980s. *Health Policy, 79*(2–3), 253–264.

Fritzell, S., Weitoft, G. R., Fritzell, J., & Burström, B. (2007). From macro to micro: The health of Swedish lone mothers during changing economic and social circumstances. *Social Science & Medicine, 65*(12), 2474–2488.

Fritzell, S., Vannoni, F., Whitehead, M., Burström, B., Costa, G., Clayton, S., & Fritzell, J. (2012). Does non-employment contribute to the health disadvantage among lone mothers in Britain, Italy and Sweden? Synergy effects and the meaning of family policy. *Health & Place, 18*(2), 199–208.

Hancioglu, M., & Hartmann, B. (2013). What makes single mothers expand or reduce employ-ment? *Journal of Family and Economic Issues, 35*(1), 27.

Hope, S., Power, C., & Rodgers, B. (1999). Does financial hardship account for elevated psycho-logical distress in lone mothers? *Social Science and Medicine, 49*, 1637–1649.

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior, 38*(1), 21–37.

Lietzmann, T. (2009). Bedarfsgemeinschaften im SGB II: Warum Alleinerziehende es besonders schwer haben. *IAB-Kurzbericht, 12*, 1–8.

Lipman, E. L., Offord, D. R., & Boyle, M. H. (1997). Single mothers in Ontario: Sociodemographic, physical and mental health characteristics. *Canadian Medical Association Journal, 156*, 639–645.

Lucas, R. E. (2007). Adaptation and the set-point model of Subjetive well-being: Does happiness change after major life events? *Current Directions in Psychological Science, 16*(2), 75–79.

Macintyre, S. (1992). The effects of family position and status on health. *Social Science & Medicine, 35*(4), 453–464.

Mittelmark, M. B., Aaroe, L. E., Henricksen, S. G., Siqveland, J., & Torsheim, T. (2004). Chronic social stress in the community and associations with psychological distress: A social psycho-logical perspective. *International Journal of Health Promotion, 6*(1), 5–17.

Ott, N. Hancioglu, M., & Hartmann, B. (2011b). *Dynamik der Familienform "alleinerziehend"*. Gutachten für das BMAS, Ruhr-Universität Bochum.

Roos, E., Burström, B., Saastamoinen, P., & Lahelma, E. (2005). A comparative study of the pattering of women's health by family status and employment status in Finland and Sweden. *Social Science and Medicine, 60*, 2443–2451.

Ruhm, C. J. (1996). *Are recessions good for your health?* (NBER Working Paper Series, 5570).

Schimmack, U. (2008). *Measuring wellbeing in the SOEP*. In SOEP paper 145.

Statistisches Bundesamt. (2010). *Alleinerziehende in Deutschland* – Ergebnisse des Mikrozensus 2009.

Statistisches Bundesamt. (2013). *Fachserie 1 Reihe 3, Bevölkerung und Erwerbstätigkeit. Haushalte und Familien* – Ergebnisse des Mikrozensus 2012.

Taragosz, S., Bebbington, P., Lewis, G., Brugha, T., Jenkins, R., Farrell, M., & Meltzer, H. (2003). Lone mothers, social exclusion and depression. *Psychological Medicine, 33*(4), 715–722.

Vandecasteele, L. (2011). Life course risks or cumulative disadvantage? The structuring effect of social stratification determinants and life course events on poverty transitions in Europe. *European Sociological Review, 27*(2), 246–263.

Wagner, G., Frick, J., & Schupp, J. (2007). The German Socio-Economic Panel Study (SOEP) – Scope, evolution and enhancements. *Schmollers Jahrbuch, 127*(1), 139–169. In SOEPpaper 1.

Wang, J. L. (2004). The difference between single and married mothers in the 12-month prevalence of major depressive syndrome, associated factors and mental health service utilization. *Social Psychiatry and Psychiatric Epidemiology, 39*(1), 26–32.

Westin, M., & Westerling, R. (2006). Health and healthcare utilization among single mothers and single fathers in Sweden. *Scandinavian Journal of Public Health, 34*(2), 182–189.

Wickrama, K., Lorenz, F. O., Conger, R. D., Jr, G. H. E., Abraham, W. T., & Fang, S.-A. (2006). Changes in family financial circumstances and the physical health of married and recently divorced mothers. *Social Science & Medicine, 63*(1), 123–136.

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach*. Mason: South-Western Cengage Learning.

Wyke, S., & Ford, G. (1992). Competing explanations for associations between marital status and health. *Social Science & Medicine, 34*(5), 523–532.

Young, L. E., Cunningham, S. L., & Buist, D. S. M. (2005). Lone mothers are at higher risk for cardiovascular disease compared with partnered mothers. Data from the National Health and nutrition examination survey III (NHANES III). *Health Care for Women International, 26*(7), 604–621.

Zick, C. D., & Smith, K. R. (1991). Marital transitions, poverty, and gender differences in mortal-ity. *Journal of Marriage and Family, 53*(2), 327–336.

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