

5 DISCUSSION

The main goal of this dissertation was to investigate two interrelated research questions. First, is one manifestation of the development of life longings the transformation of highly important yet unrealizable goals into life longings? Second, is the possible transformation of an unattainable goal into a life longing beneficial for an individual's well-being? In order to investigate these questions, I conducted a quasi-experimental study, in which middle-aged childless women were asked to indicate to what extent their mostly unattainable wish for children fulfilled characteristics of goals and life longings. It was then examined how the expression of their goal and/or life longing to have children was related to well-being.

This discussion chapter is organized as follows: I start by summarizing the major findings of the present study. These findings will then be integrated into and interpreted in light of existing theories and research. This is followed by some remarks on the theoretical and practical implications of these findings, a discussion of limitations, and an outlook for future research in this area.

5.1 The Wish for Children is Well-Suited for the Investigation of the Development and Functionality of Life Longings

As described in the Theory part of this thesis, I chose one specific goal (namely the goal to have children) in order to investigate its possible transformation into a life longing. This choice was made to avoid diversity of reported blocked goals as one source of inter-person variability. The underlying assumption was that the comparison of persons who are at different stages of the transformation process from goal to life longing would be more reliable if the content of the blocked goal was held constant.

Theoretical assumptions and empirical findings of previous studies suggest that the wish for children is likely to be experienced as a life longing (see Chapter 2.5.5). Before data could be analyzed it was necessary to ensure that this held true also in the present study. That is, it needed to be shown that the childless women did indeed express their wish for children as a life longing (or a goal, respectively). Supporting this assumption, the majority of women in the present study expressed their wish for children as a life longing, that is, their child-wish was related to a sense of incompleteness, had a symbolic meaning, activated reflective and evaluative thoughts as well as ambivalent emotions, was related to their past, present, and future, and represented an utopian aspect of their lives. In particular, currently involuntarily childless women scored relatively high on all six structural characteristics of life longings.

However, women who were currently voluntarily childless but had a wish for children in former times also rated their wish for children highly on the life longing characteristics. Although they scored lower than currently involuntarily childless women, their scores were still above those of women who never had a wish for children (always voluntarily childless women). This finding underscores that both present childlessness status (voluntarily versus involuntarily childless) and former childlessness status needs to be taken into account when considering the life longing to have children. Even if a woman is voluntarily childless at present, she may nevertheless have a life longing to have children.

The second strategy to validate the chosen approach was to let the women list their two most important life longings and a given-up goal. Overall, 17% of the women spontaneously reported the life longing to have children and 19% reported the given-up goal to have children. Involuntarily childless women listed the life longing and the given-up goal to have children more often than currently voluntarily childless women or women who never had a wish for children. Again, the given-up goal to have children was also listed by several currently voluntarily childless women. This is not surprising given that women in this group had a wish for children in former times. At first sight, the percentages of listing the life longing or given-up goal to have children may not appear very high. Yet, it needs to be noted that asking participants to list life longings or given-up goals represents a relatively conservative measure, similar to free recall. If the task had been more direct, for instance asking “Do you have the life longing to have children?” (representing a recognition task) more women would probably have agreed with this question.

Also as expected, involuntarily childless women were more likely to rate their wish for children as a goal than women who never wanted a child and women who wanted a child in the past but were concurrently voluntarily childless. These latter two groups did not differ with respect to goal expression. This result mirrors an interesting differentiation in the rating of the wish for children as a goal or life longing. Whereas for goal expression only the concurrent presence of the wish for children was relevant, the wish for children was expressed as a life longing regardless of when the wish for children occurred (at present or in former times).

In sum, results of the validation checks suggest that the wish for children is well suited for an investigation of the transformation of an unattainable goal into a life longing. Childless women in fact express their wish for children as a goal and/or as a life longing.

5.2 Life Longings Can Develop Out of Unattainable Goals

The first research question addressed the development of life longings, specifically, whether they can evolve out of unattainable goals. As described in Section 2.3.1, life longings are assumed to develop under conditions of incompleteness, nonrealizability, and loss (see also P. B. Baltes, in press; Scheibe, 2005). The confrontation of childless women with the fact that the attainment of their wish for children is impossible represents such an experience of nonrealizability and loss.

5.2.1 Different Variables Predict Goal- and Life Longing Expression

Under which conditions is the wish for children expressed as a goal or a life longing? Several child-wish-related variables were used as predictors for goal and life longing expression including intensity (past, present, and future), duration, subjective attainability, and objective attainability of the wish for children. Women who rated their wish for children as currently intense and attainable reported a strong expression of the goal to have children. Women whose wish for children was of long duration and of high intensity at present, in the past, and/or in the future reported a strong expression of the life longing to have children. Attainability did not play a role in this context. These findings support the assumption that the emergence of the goal versus the life longing to have children are predicted by partly different child-wish-related variables. This suggests that they are likely to occur under different conditions, which will now be discussed in more detail.

The Predictive Effects of Duration and Intensity of the Wish for Children

The differential predictive effects of duration and intensity of the wish for children for goal versus life longing expression can be linked to each other as will be explained now. For goal expression only the concurrent intensity of the wish for children but not duration nor past and future intensity of the wish for children had predictive effects. In contrast, all these variables (duration, past, present, and future intensity) were crucial predictors of the life longing to have children. The longer the wish for children was present and the more intense it was in the past, present, and anticipated future the more likely women were to develop a life longing to have children. The relevance of duration and intensity of a wish at different time points in life can be interpreted in terms of a dosage effect. A higher dosage as indicated by a long duration of the wish for children and a strong intensity of this wish in the past, present, and future increased the likelihood of reporting a strong expression of the life longing to have children.

This result also reflects the assumption that the emergence of a life longing is likely to be preceded by a goal. That is, a wish may at first be pursued as a goal, but the longer it remains unattained, the more likely it may take on characteristics of a life longing. The assumption that past wishes or goals are reflected in life longings was also supported by the finding reported above that women who were voluntarily childless at present but who had a wish for children in former times also showed relatively strong life longing expressions.

Furthermore, the predictive effects of past, current, and future intensity of the wish for children for life longing expression support the theoretical notion that life longings - in contrast to goals - are related to a person's past, present, and future (P. B. Baltes, in press; Scheibe et al., 2007). In this sense, results of the present study are in line with findings by Mayser et al. (in press) that life longings are more likely than goals to be related to a person's past.

The Predictive Effect of Attainability of the Wish for Children.

Another variable that had differential predictive effects on goal and life longing expression was attainability of the wish for children. So far, it has been argued that attainability represents one of the major antecedents for goal and life longing expression: High attainability of the wish for children should be related to a stronger goal expression whereas low attainability should be linked to a stronger life longing expression (see Mayser et al., in press). As expected, women who perceived their wish for children as highly attainable reported a stronger expression of the goal to have children. Interestingly, in contrast to the subjective rating of attainability, objective attainability of the wish for children did not play a role in predicting goal expression. Particularly because chronological age was one component of the measure of objective attainability and age is a central indicator for the blockage of the goal to have children I had assumed that those women for whom it was objectively less attainable to fulfill their wish for children would also report a lower expression of the goal to have children.³³

The fact that subjective but not objective attainability of the wish for children predicted goal expression is in line with the frequent finding in psychological research that subjective ratings sometimes have more predictive power than objective information. Studies

³³ At the bivariate correlational level there was in fact a significant negative relationship between age and goal expression as well as between objective attainability and goal expression. However, in the path model that controlled for the effects of intensity, duration, and subjective attainability of the wish for children, the effect of objective attainability was nonsignificant.

by Maier and Smith (1999), Levy (2002) or Levy and Myers (2005) showed that the subjective evaluation of satisfaction with one's own aging predicted mortality over time even after controlling for several objective variables (such as age or functional health). In addition, the dominance of the subjective rating of attainability of the wish for children over the objective rating might also be related to self-efficacy beliefs. Perceived self-efficacy, that is the subjective belief that one can produce a desired outcome, has been shown to be associated with a variety of outcome variables. These associations sometimes exceed the predictive value of objective factors (e.g., Bandura, 1982, 1993; Schwarzer, 1992). For instance, when baseline memory performance was controlled, those persons who reported higher perceived self-efficacy performed better in a memory task than persons with low self-efficacy (Bandura, 1989; Rebok & Balcerak, 1989).

Moreover, the subjective attainability of the wish for children might be a more powerful predictor of goal expression than its objective attainability because the subjective rating carries additional information that the objective rating does not include³⁴. This could be the emotional value of the goal to have children or the personal interpretation of the (un)attainability of the wish for children (in the sense of primary and secondary appraisal processes, cf., Lazarus, 1991). Another methodological aspect that needs to be taken into account is the fact that the outcome variables (in this case life longing expression and goal expression) were also assessed with subjective ratings. It can be speculated that a variable (e.g., attainability of the wish for children) that is assessed at the same level as the outcome variable (e.g., expression of the goal to have children) might have more predictive power than a variable that is assessed at a different level.

Another hypothesis was that life longings would emerge when self-relevant goals are rendered unattainable and that therefore low attainability of the wish for children should be characteristic for a wish for children that is expressed as life longing. Opposite to this expectation, neither objective nor subjective attainability of the wish for children was related to the expression of the life longing to have children when controlling for intensity and duration of the wish for children.³⁵ This suggests that wishes can be expressed as life longings irrespective of their attainability. However, this result might be influenced by the fact that women in the present study were at an age at which the fulfillment of the goal to have

³⁴ One could also speculate in this context that women have a relatively accurate subjective perception of attainability, hence objective attainability does not have any *additive* predictive value.

³⁵ At the bivariate correlational level, life longing expression was even slightly positively related to objective attainability ($r = .17, p < .05$) and to subjective attainability ($r = .18, p < .05$).

children becomes increasingly problematic or they had already encountered difficulties on their way toward goal fulfillment. These difficulties might have led to the emergence of the life longing to have children even though the goal to have children was not fully unattainable.

Prediction of the Structural Characteristics of Life Longings

Following up findings on predictors of overall life longing expression, I was also interested in the more exploratory question whether all six structural characteristics of life longings (incompleteness, symbolic meaning, reflection/evaluation, emotional ambivalence, tritime focus, and personal utopia) would be predicted by the same child-wish-related variables. If so, this would speak for the interrelatedness of the six dimensions that characterize life longings. Equivalent to the findings for overall life longing expression, women's wish for children was rated as high in terms of incompleteness, symbolic meaning, tritime focus, reflection/evaluation, and emotional ambivalence, when it was of long duration and highly intense in the past, present, and future. In contrast, women rated their wish for children as high on personal utopia when it was of long duration and subjectively less attainable. The effect of attainability on personal utopia is in line with the initial expectation that perceived low attainability of the wish for children should be related to a stronger expression of life longings. Within the conception of life longings, it is especially the facet of personal utopia that characterizes life longings as inherently unattainable. In this context, the interrelation of personal utopia and attainability is plausible. In addition, the confirmatory factor analysis and bivariate correlations had revealed that personal utopia showed the weakest (although still significant) relationships to the other facets of life longings (see Section 3.3.2) indicating a specific role of personal utopia within the life longing conception. This might explain the somewhat deviating pattern for the prediction of personal utopia in comparison to all other five structural dimensions of life longings.

In conclusion, the different predictive patterns of duration, past and future intensity, and subjective attainability of the wish for children on goal and life longing expression mirror the structural distinctiveness of goals and life longings. This suggests that both concepts are likely to have different developmental antecedents and correlates, that is, they occur under different conditions.

5.2.2 Stages of the Transformation Process From Goal to Life Longing

As emphasized previously, the aim of the present study was to explore the possible transformation process from goals to life longings. Above I described the conditions under which childless women are likely to express their wish for children as a goal or as a life longing. However, although knowledge about these conditions is an important antecedent for the investigation of the transformation process, these results provide only limited information about the developmental process of life longings. One of the major challenges and limitations of this dissertation was that no longitudinal data were available for the examination of this proposed process. From a methodological perspective, this point will be discussed in more detail in Chapter 5.5 (Limitations of the present study). In order to nevertheless approximate the transformation process, possible stages of the transformation from goal to life longing were explored. Such stage-centered and process-oriented theories are very common in research on coping, self- or emotion-regulation, stress, critical life events, or bereavement. For instance, reactions to stress (e.g., Lazarus, 1966; Seyle, 1956) or critical life events (e.g., Kuebler-Ross, 1969 on stages in the reaction to death) have been described in terms of stages. As already illustrated in more detail in the theoretical part of this thesis, Klinger (1975, 1977) segmented reactions to blocked goals into five stages and Wrosch and colleagues (2003a) also portrayed the disengagement from unattainable goals as a process.

Representation of Stages of the Transformation Process by Transition Groups

In order to investigate the stages of the transformation process from goal to life longings, women in the present study were assigned to four groups according to their goal and life longing expression so that each group except the control group represented one stage in the transformation process. Women were considered to be *before the transition* from goal to life longing if they reported a strong goal to have children but a weak expression of the life longing to have children. Women were considered to be *in transition* if they simultaneously expressed their wish for children highly in terms of goal and life longing characteristics. Women were considered *after the transition* if they reported a weak goal to have children but a strong life longing to have children. Women in the “*control group*” had neither a strong expression of the goal nor a strong expression of the life longing to have children.

Are these four groups a valid representation of the different stages? Regarding the grouping of participants into the four described groups and the naming of these groups (before transition, in transition, after transition, control), it needs to be acknowledged that the respective expressions on goal and life longing characteristics do not necessarily have to reflect this transformation process. For example, women who currently have a strong goal but

no life longing to have children are (in the chosen terminology) said to be in the “before transition stage”. However, it can only be speculated that their goal to have children will in fact be transformed into a life longing at some point in time. Women might also disengage from this goal completely and not continue to pursue it as a life longing. The “in transition group” might include women whose wish for children has *always* fulfilled the criteria of life longing. That is, the simultaneous presence of the goal and life longing to have children may not be indicative for a transition process but might reflect the pronounced importance of the wish for children for these women.

Further it is also only speculation that those women who have a strong life longing expression but a weak goal expression (called “after transition”) ever had a goal to have children and in fact transformed this goal into a life longing. It might be the case that these women’s wish for children was never pursued as a goal but emerged only at the level of fantasy as a life longing. Finally, least is known about the women in the “control group”. On the one hand, the “control group” includes women who never had a wish for children. On the other hand, this group also contains women who have or had a wish for children but who no longer pursue this wish as a goal or a life longing. For the latter women several scenarios are imaginable. First, although these women have or had a wish for children, they might never or not yet have pursued the wish for children as a goal or a life longing. Second, these women might have pursued their wish for children as a goal but disengaged from this goal completely without transforming it into a life longing. Third, these women might have had this goal but repressed it when they realized that they could not attain it. Fourth, these women might have formerly had a life longing to have children, but “disengaged” from it.

Nevertheless, despite these potential limitations, these four groups appear to represent a transformation process in their characterization. If this assumption is valid, what do these characterizations tell us about the transformation process?

Characterization of the Transition Groups and Conclusions for the Transformation Process

Women with a strong expression of the goal to have children (that is, before or in transition) were on average younger than those with a weak goal expression (after the transition or “control group”). This finding reflects the age normativity of the goal to have children and the fact that women can only give birth to a child up until they reach the biological deadline for childbearing. It is also consistent with results of the study by Heckhausen and colleagues (2001) who found that women after the biological deadline for childbearing reported almost no childbearing goals when asked to list their goals. Women after the transition from goal to life longing (weak goal but strong life longing expression)

and in the “control group” were older than women in the transition phase. This supports the assumption that when women are too old to pursue the goal to have children they may continue to pursue it as a life longing.

Women in the four groups were characterized by different profiles on a set of child-wish-related variables (intensity, duration, subjective attainability, objective attainability) and groups differed on the mean expressions of these variables. These differences shall be discussed now in more detail.

Intensity of the wish for children. The intensity of the wish for children showed an inverse U-shaped trajectory over the assumed transformation process: medium-size scores for women in the “before transition stage”, high scores for women in the “in transition stage”, medium-size scores for women in the “after transition stage”, and low scores for women in the “control group”. Why did women with a strong goal and a strong life longing expression (i.e., in the “in transition stage”) report the highest intensity of the wish for children? The fact that women in this group reported a strong expression of the goal and the life longing to have children suggests that these women already encountered difficulties in attaining their goal to have children and therefore realized the utopian nature of this goal. In his incentive-disengagement cycle, Klinger (1977) proposed that the first reaction to the potential blockage of goals is to increase effort toward goal achievement. This idea is also consistent with other theories of self-regulation such as the dual process model of self-regulation (Brandtstädter & Renner, 1990) or the OPS model (Heckhausen & Schulz, 1993). In these theories it is proposed that persons first try to make use of assimilative or primary control strategies (i.e., active modes of coping such as focusing on one goal or investing more resources) when they are faced with blocked goals. Thus, when women approach the blockage of their goal to have children by reaching the biological deadline for childbearing or by being confronted with other factors that make it difficult to have children, they are likely to increase their behavioral effort as well as their cognitive and emotional commitment to this goal in order to overcome these obstacles. The high intensity of the wish for children for women in this group could be one indicator for the increased effort and commitment toward the goal to have children. However, in order to completely understand the increase of child-wish intensity in this particular stage of the transformation process it needs to be examined in process. That is, it would be necessary to identify the specific time points when effort and commitment are increased (i.e., when assimilative coping starts) and when the switch from this assimilative strategy to the accommodative strategy of giving up the goal at the behavioral level and pursuing it at the level of imagination as a life longing takes place.

The interpretation of an increased effort and commitment is in line with findings of studies by Heckhausen and colleagues (2001) and Light and Isaacowitz (2006) who showed that women who approached the deadline for childbearing reported a particularly strong engagement with the goal to have children. Women close to the deadline for childbearing reported more childbearing goals, recalled more baby-relevant sentences in an incidental learning task, and showed a longer visual fixation on baby images than women who had passed the deadline. The increased effort and commitment to the goal to have children can also be influenced by a greater societal pressure to attain the goal to have children. This societal pressure mainly results from two components: the normativity of childbearing as one of the major developmental tasks and societal age deadlines for childbearing (Settersten & Hägestad, 1996).

Duration of the wish for children. As expected, the duration of the wish for children showed an increase over the assumed transformation process. This is consistent with the assumption that the life longing to have children was first pursued as a goal. The longer women maintained the wish for children, the more likely it was unattainable and therefore they continued to pursue it at the level of imagination as a life longing. It can be assumed that the longer a goal is pursued, the more it becomes a part of one's own identity, which makes it especially challenging to disengage from this goal. According to Wrosch et al. (2003a), goal disengagement includes two components: the withdrawal of effort and commitment. While people may be able to withdraw effort from unattainable goals, the withdrawal of commitment from such identity-relevant goals might be much more difficult. The instantiation into one's self makes it more likely that persons cannot give up a certain (emotional and cognitive) commitment to the unattainable goal and therefore transform it into a life longing. This means that the wish for children is no longer pursued at the behavioral level as a goal but is still represented at the cognitive-emotional level as a life longing.

Attainability of the wish for children. Subjective and objective attainability of the wish for children were high in women in the "before transition stage" and "in transition stage" but, as expected, lower in women in the "after transition stage" and "control group". The result that attainability of the wish for children was still high in women who reported a strong goal and life longing to have children demonstrates again that life longings can already occur when the probability to realize a goal is still given. Further, this result might be explained by the already mentioned circumstance that most women in the present study already encountered difficulties with respect to the attainment of their goal to have children. In the present study, only three variables were used as indicators for objective attainability of the wish for children: age, presence of a partner, and sexual orientation. However, difficulties on the way to goal

attainment could also result from a variety of other sources such as a medical diagnosis of infertility, practicability issues that speak against having children at a certain time point, or the unwillingness of the husband to have children (see Figures A1 to A3 in Appendix A for an overview of reasons for childlessness at different ages). Because of such difficulties, the life longing might have already developed (in the sense that women realized the utopian nature of the goal to have children and anticipate a potential chronic incompleteness in this life domain) even if the subjective and objective likelihood for goal attainment were still high.

Moreover, high scores on attainability in the “in transition stage” might reflect the increased effort toward goal achievement. It can be speculated that women who put much effort into the attainment of their goal to have children might be overly optimistic, which might lead to an overestimation of the real likelihood to attain the goal to have children.

Taken together, based on the assumption that the four groups represent the process of transforming the goal to have children into a life longing, it can be concluded that intensity of the wish for children showed an inverse U-shaped trajectory while duration increased and attainability decreased over the stages of the transformation process.

Open Questions Concerning the Developmental Trajectory of Life Longings

In the present dissertation a specific example of the more general process of transforming an unattainable goal into a life longing was investigated. However, there are some more characteristics of this transformation process that are crucial to the understanding of life longings from a process perspective.

Abrupt versus gradual change in level of representation. First, one needs to determine whether the change in the representation of a wish as a goal to the representation of this wish as a life longing is abrupt or gradual. In the present study this change was proposed to be gradual and can therefore be understood as a transition (Elder & Kirkpatrick Johnson, 2003; Settersten, 2003). In the case of a transition, a wish is first pursued as a goal. The longer it takes and/or the more difficult it is to attain this goal the more the underlying wish takes on characteristics of a life longing while it is still being pursued as a goal. Finally, when goal attainment becomes too unlikely or even impossible the goal is likely to be given up. But because of the difficulties in completely relinquishing the goal, the life longing, that is, a cognitive and emotional commitment to the goal target remains. In contrast to the first scenario, there could also be an abrupt change from a wish being represented as a goal to a representation as a life longing. For example, there could be a specific (unexpected) event that renders a goal unattainable. In this case, the goal may disappear abruptly and the process of transformation towards a life longing begins. There would be no period in which both the goal

and life longing expression are strong at the same time. Although the data of the present study support the first scenario (i.e., a gradual change), this does not exclude the possibility that an abrupt change occurs for some women or in cases when persons are faced with a other sudden, unexpected loss.

Direction of the transformation process. Another important aspect of the transformation process concerns its direction. So far, it was proposed that unattainable goals are transformed into life longings. As described in more detail in the theoretical section, this transformation process reflects the function of life longings to help people manage nonrealizability and loss (Baltes, 2007; Scheibe et al., 2007). However, it remains open whether a life longing can be (back-) transformed into a goal. Due to unanticipated changes in opportunity structures a goal that formerly was perceived as unattainable and therefore was transformed into a life longing might become attainable again. In this case, the level of representation of the underlying wish may switch from cognitive-emotional to cognitive-emotional *and* behavioral, initiating behavioral effort toward goal achievement. In a similar way, Klinger (2004, p. 19) states that “[...] goal-striving is rapidly reinstated when the reward is again made available.” However, as soon as the window for attaining the goal is closed again, it becomes likely that if the goal was not attained within this time, this goal is transformed into a life longing again. For example, a woman with an intense wish for children might have transformed her goal to have children into a life longing when she got to know that she is infertile. When medicines encourage her to try out a promising new medical treatment, the woman might back-transform her life longing to have children into a goal and put effort into attaining this goal. When she finally realizes that this treatment is also not successful in her case, she is likely to transform her goal into a life longing again, that is, she withdraws effort from the goal but remains committed to the goal target at the cognitive-emotional level.

One could also imagine a case in which a wish that was only represented as a life longing (and never as a goal before) is transformed into a goal. This type of transformation would reflect the function of life longings to give direction to a person’s life (Baltes, in press; Scheibe et al., 2007), meaning that life longings can be translated into concrete, achievable goals. Together, these considerations underscore that the direction of the transformation process is not necessarily unidirectional and that a bidirectional switching between goal and life longing modes within the process of goal – life longing transformation is possible as well.

Termination of life longings. Yet another question that needs to be considered in this context is whether and how life longings are terminated. Again, there are several possibilities, two of them are mentioned here. First, life longings may never be terminated and accompany

a person throughout his or her entire life. This idea is in accordance with the theoretical notion that life longings show an ontogenetic tritime focus on a person's past, present, and future (P. B. Baltes, in press; Scheibe et al., 2007). Alternatively, a person might terminate a life longing by completely disengaging from it. This disengagement process could be similar to the disengagement cycle proposed for unattainable goals (e.g., Klingler, 1975; Wrosch et al., 2003a). The disengagement cycle for unattainable goals includes a stage of increased effort to override obstacles. Such a stage of increased effort to attain a life longing would probably not exist. The process of disengaging from a life longing would include a complete withdrawal of the cognitive and emotional commitment to the life longing. This might be a question of time or situational conditions. If the cognitive-emotional commitment to a life longing is not reinforced anymore or attention is shifted to other areas, this life longing might become less activated and "fade out".

Short-term versus long-term course of life longings. So far, the ontogenesis of life longings was described only from a long-term perspective. That is, it was asked under which conditions life longings develop, how their trajectory over time looks like, and whether and how they are terminated. As in the present sample, the long-term course of life longings can last several months or, what is even more likely, several years. This perspective is consistent with the theoretical notion that life longings have to be considered as a life-long process (P. B. Baltes, in press; Scheibe et al., 2007). However, even though a life longing accompanies a person over time, the strength of the activation of this life longing may differ from moment to moment. There might be situations in which the activation of a life longing is particularly strong whereas at other times the person is not experiencing this life longing at all. Each of these momentary life longing activations can be understood as short-term life longing episodes. Future research would benefit from examining in more detail the micro-level of life longing development.

To summarize, data of the present study are consistent with the assumption that life longings can develop out of unattainable goals. The developmental trajectory of life longings can be described in terms of stages of the process of transforming an unattainable goal into a life longing. However, many questions concerning the developmental trajectory of life longings need to be kept in mind when drawing conclusions about the actual developmental process from the cross-sectional data of the present study.

5.3 Conditions Under Which the Transformation of Unattainable Goals Into Life

Longings is Beneficial

Building on the first research question on the development of life longings, my second research question asked whether the transformation of the unattainable goal into a life longing is beneficial for individuals. One of the basic assumptions of this dissertation was that life longings develop when individuals are faced with nonrealizability and loss. Based on the theoretical proposition that life longings help people deal with the incompleteness of life (cf., P. B. Baltes, in press; Boesch, 1998; Ravicz, 1998) it was suggested that when individuals are not able to pursue an important self-relevant goal on the behavioral level and when they are not able to completely disengage from this goal (i.e., withdraw effort *and* cognitive-emotional commitment), it is likely that they continue to pursue this unattainable goal at an imaginary level as a life longing. Theoretically, this shift from goal to life longing should assist the individual in dealing with the nonrealizability of the goal and is therefore proposed to be a compensatory strategy in the sense of the SOC theory (P. B. Baltes & Baltes, 1990).

5.3.1 Goal Expression is Negatively Related to Well-Being if the Goal is Unattainable

In order to explore the adaptive nature of the transformation process from goal to life longing, the association between well-being and goal expression was examined first. Theoretical assumptions and empirical evidence suggest that the successful pursuit and fulfillment of personally meaningful goals represent a source of happiness and psychological well-being (Diener, 1984; Emmons, 1996). In the present study, however, a stronger expression of the goal to have children was related to higher depressivity and no significant association occurred between goal expression and happiness or psychological well-being. The link between goal expression and depressivity may be explained by the observation that almost all women in the present study who had a wish for children had already encountered some barriers in attaining their goal to have children (see above), which might have dampened the positive effect or even led to a negative effect of goal pursuit on well-being.

The relevance of goal attainment was also supported by additional moderator analyses. As hypothesized, the association between goal expression and well-being (in this case psychological well-being) was qualified by subjective attainability of the wish for children: Women who perceived their wish for children as unattainable showed a negative relationship between goal expression and psychological well-being (i.e., the stronger their goal to have children the lower their psychological well-being). In contrast, a positive association between both variables was found for women who evaluated their wish for children as attainable. These results are in line with previous research on the association between goals and well-

being. A lack of past goal attainment or low probability of future success in achieving a goal has been found to be related to negative affect (Emmons, 1986; Emmons & Diener, 1986) and depression (Klinger, Barta, & Maxeiner, 1980). Similarly, Brunstein and colleagues showed that a strong commitment to goals is negatively related to well-being if the goal is perceived as unrealizable and incongruent with one's own needs and motives (Brunstein, 1993, 1999; Brunstein et al., 1998). The literature on involuntary childlessness also stresses that not being able to realize one's goal to have children can have negative effects on well-being (for overviews see Greil, 1997; Wischmann, 2006).

Why is there a negative effect on well-being if someone pursues a goal but is not able to attain it? Three possibilities are considered: importance of the goal, substitutability of the goal, and length of time that a person pursued this goal. First, for most women in the present study, the goal to have children was highly important. This goal reflects a major life decision as well as an age-normative developmental task (Havighurst, 1972; Heckhausen et al., 2001). Being a mother is central to many women's identity (Letherby, 2002a) and thus, the goal to have children is placed very high in their goal hierarchy. This also points to a second important explanatory factor, namely goal substitutability. The goal to have children is not only likely to be placed high in the goal hierarchy of a person, it is also a very concrete one. These circumstances can make it very difficult to find an appropriate substitute for this goal. Even if participants engage in alternative life goals (this aspect will be discussed in more detail below), it is rather unlikely that these alternative life goals can fully substitute the symbolically rich goal to have children. Intuitively, one "direct" form of substitution would be the adoption of a child. However, in Germany adoption is a very longstanding and complicated procedure and only relatively few couples can adopt a child (e.g., Engstler, 1998). Furthermore, for some people adoption is not equal to having one's own children. Thus, for many people adoption does not appear to be a substitution for having biological children.

Third, many women in the present study pursued their goal to have children with strong effort over a long period of time. The lives of some women, especially if they received medical treatment, might have been almost completely devoted to the attainment of this specific goal. Consequently, it might be particularly difficult to give up the relatively strong commitment to this goal. The nonrealizability of this goal can mark a radical change in these women's lives and it is likely to represent a threatening event for which adaptation processes such as searching for meaning, trying to gain mastery, and attempting to enhance the self are required (see Taylor, 1983 on the theory of cognitive adaptation to threatening events). Together, high importance, low substitutability, and long investment into the goal to have

children may help to understand a) why women pursue the goal to have children and b) why they report lower well-being if they are not able to attain it.

In conclusion, the present study showed that a blockage of the goal to have children can negatively affect well-being if a woman puts much effort into attaining this goal. In order to manage the nonrealizability of a goal and to regain well-being, self-regulation strategies are required (e.g., Brandtstädter & Renner, 1990; Heckhausen et al., 2001; Klinger, 1975; Wrosch et al., 2003a). In the present dissertation, it was suggested that one self-regulatory strategy might be the pursuit of the unrealizable goal at an imaginary level as a life longing. Thus, my next question was how the life longing to have children is related to well-being.

5.3.2 Life Longing Expression is Negatively Related to Well-Being

In order to test the assumption that the pursuit of an unattainable goal at an imaginary level as a life longing is a compensatory strategy to manage nonrealizability and loss, the relationship between life longing expression and well-being was explored. I had predicted a quadratic association between both variables such that a moderate expression of life longing would be related to higher well-being than a very strong or weak expression of life longing. Contrary to these expectations, a linear negative relationship between well-being and life longing expression was found: Women with a strong life longing to have children reported lower psychological well-being, lower happiness, and higher depressivity than women with a weak life longing to have children. Such a negative relationship between life longing and well-being was also found in a previous study on life longings (Scheibe et al., 2007).

The finding that women with a strong expression of the life longing to have children reported the lowest well-being scores was also obvious when exploring well-being as a function of transition group. Women who were presumably in the “in transition from goal to life longing stage” or in the “after transition stage” had significantly lower scores on psychological well-being than women in the “before transition stage” or women who had a wish for children in former times but did no longer express this wish as a goal or a life longing (i.e., women in the “control group”).³⁶ Further, women in the “in transition stage” were less happy and more depressive than women in the “control group”. These findings

³⁶ Note that, as described in the Results chapter, only women who currently or previously had a wish for children were included in the analyses concerning the research question on the functionality of the transformation process. Thus, women in the “control group” are characterized by a currently low expression of the goal and life longing to have children but all of them had a wish for children in former times. In this regard the composition of the “control group” for these analyses differed from the composition of the “control group” in the first research question where also women who never had a wish for children were included.

indicate that the phase in which the transition takes place, that is, when both the expression of the goal but also the expression of the life longing to have children are highest, might be the most critical one compared to the situation when goal expression and life longing expression are low. This could be explained by the fact that women in this phase were strongly committed to the goal to have children and already pursued this goal for a long period of time without attaining it so far (see Chapter 5.2.2). During this phase, women have to accept that maybe they won't be able to attain their goal to have children after all and that they will have to stop putting effort into attaining it while at the same time begin to disengage from it.

What are possible explanations for the finding that women with a strong expression of the life longing to have children report lower well-being? Reasons for this negative relationship might be very similar to the reasons for the negative relationship between the unattainable goal to have children and well-being (see Chapter 5.3.1). It can be assumed that for many women, the goal to have children was very important, rarely substitutable, and pursued over a long period of time. Thus, when the women realized that their goal to have children was definitely no longer attainable, they probably only slowly withdrew their attention from this central life topic. This assumption is supported by the previously reported finding that some women pursued their wish for children as a goal and a life longing at the same time. In this regard, withdrawing effort from the goal and transforming it into a life longing is likely to be a slow process. Given the cross-sectional design of the present study it may have been difficult to capture this slow process.

If this transformation is a slow process it could be speculated that a positive association between life longing expression and well-being can only be observed at the tail end of the transformation process. That is, a strong expression of the life longing to have children might be first related to lower well-being. However, after a certain time, a moderate life longing expression might in fact be beneficial. Unfortunately, in the present study, it was not assessed when exactly the goal to have children was given up. Thus, the positive effect of life longings might only be found after controlling for time between giving up a goal and assessment of life longing expression and well-being. Evidence that outcomes of reactions to loss can change over time was also found in other areas of research. King and Hicks (King & Hicks, 2006) describe that *over time* the capacity to elaborate on lost goals is predictive of positive development. Similarly, the literature on bereavement shows that during the first year after the loss of a loved person, the *attempt to make sense of the loss* is associated with reduced distress (Davis, Nolen-Hoeksema, & Larson, 1998). After the first year, this positive relationship changes and making sense of the loss was no longer beneficial. Instead, 13 and

18 months after the loss *finding solace in the experience of the loss* was related to reduced distress.

The literature on bereavement provides some more explanations for the negative relationship between well-being and life longing expression. Bereavement researchers point out that continuing bonds with the deceased can have positive outcomes in that these bonds provide comfort and support after the loss (Bonanno & Kaltman, 1999). However, it is also noted that when the grief is overly intense and longstanding (this is conceptualized as “complicated grief”, e.g., Shuchter & Zisook, 1993), a continued bond is proposed to be dysfunctional. In this case it would be more adaptive to downgrade the importance of the relationship to the deceased. A similar effect could apply to life longings. For those women who have an extremely high level of distress because of their involuntary childlessness, pursuing their unattainable goal to have children as a life longing is probably not beneficial. As illustrated in Figure 2 in the Theory part, in the long run women with a very high level of life longing expression might even be launching into a maladaptive, pathological state comparable to complicated grief, trauma, or posttraumatic stress. This may be especially the case in women who cannot control the onset and offset of their life longing experiences (see also Section 5.3.3). In these cases, the too strong expression of the life longing to have children may even become clinically relevant and women would need professional therapeutic help.

An additional hint within the context of the continuing bonds approach comes from Stroebe and Schut (1999) who understand continuing bonds as a loss-oriented coping style. This type of coping includes for example ruminating about the deceased, looking at old pictures, or reliving memories. On the one hand, these activities are pleasurable but on the other hand they can also be painful reminders. Whether this type of coping is beneficial or maladaptive depends on the balance between positive and negative emotions. It might be speculated that the relationship between life longing expression and well-being is similarly influenced by the balance between accompanying positive and negative emotions. In general terms, life longings are thought to have a bittersweet character, that is, they incorporate a mixture of positive and negative emotions (P. B. Baltes, in press; Scheibe et al., 2007). In this sense they should promote a balance between positive and negative feelings and therefore function as self-regulatory strategy. This further differentiates life longings from rumination or grief, which are primarily negative. However, the balance between positive and negative emotions can also be distorted for life longings. Women who focus mainly on the negative aspects of their unattainable goal to have children may suffer even more from a continued representation of their wish for children as a life longing. In contrast, pursuing the

unattainable goal to have children as a life longing might be a beneficial coping strategy in women for whom positive and negative emotions related to their wish for children are balanced. This effect might also be a question of time: At the beginning of the confrontation with the unattainability of the goal to have children, negative aspects may predominate and only at a later point in time positive aspects might join in.

In the Theory part of this thesis, I briefly described the different stages of the incentive-disengagement cycle proposed by Klinger (1975, 1977). One of the stages that individuals go through when they are confronted with blocked goals is depression. Interestingly, in this theory depression is understood as a normal and adaptive part of the disengagement process (see also Nesse, 2000 on the adaptability of depression). It is proposed that higher depression in fact helps to withdraw commitment to the blocked goal and to end the disengagement cycle. However, it is also emphasized that if individuals are not able to ultimately disengage, low mood escalates. Thus, higher depressivity, lower happiness and lower psychological well-being in women with a strong life longing to have children could either be a by-product of the transformation process from goal to life longing or it could reflect the inability to disengage from the goal to have children. Finally, it is not simply the case that life longing is unilaterally associated with lower well-being. In the next section I discuss interesting moderators of this relationship.

5.3.3 The Application of Self-Regulatory Strategies Moderates the Relationship Between Life Longings and Well-Being

The negative relationship between well-being and life longings was qualified by several variables. Women who had a strong sense of control over the experience of their life longing to have children and who reported that they generally made use of accommodative strategies of coping when faced with critical events (i.e., adjusting personal preferences to situational constraints), showed a positive relationship between life longing expression and well-being. Women who scored low on these variables showed a negative relationship between life longing expression and well-being. Further, women who reported strong disengagement from the goal to have children and/or a strong investment into alternative life goals no longer showed a significant negative relationship between well-being and life longing expression. A strong expression of the life longing to have children was beneficial for those women who had difficulties disengaging from the blocked goal and/or who did not engage in alternative goals. These moderator effects shall be discussed below.

The Moderating Effect of Control Over the Experience of Life Longing

Women who had a strong sense of control over the experience of their life longing to have children showed a positive relationship between life longing and well-being whereas women with a low sense of control over their life longing experience showed a negative relationship. This result is similar to findings by Scheibe et al. (2007; see also Scheibe, 2005) who showed that the negative relationship between life longing expression and well-being disappeared when persons had a strong control over the experience of their life longing. In addition, in the present study higher control over life longing experience was directly associated with more happiness and lower depressivity scores. Both the direct as well as the moderating effect of control over life longing experience on well-being can be linked back to the assumption that being able to control one's thoughts and feelings in general is an important correlate of well-being. By using emotion regulation strategies, individuals attempt to influence which specific emotions they experience, when they experience them and how intensely they experience them (Blanchard-Fields, 1998; Gross, 1999; Gross et al., 1997). Consequently, it can be assumed that individuals also try to regulate the onset and offset as well as the intensity of the emotions and thoughts related to their life longings. However, as seen in the empirical data, not all women in the present study were successful in controlling their life longing experience, which, under conditions of a very strong expression of the life longing, was related to low well-being.

This negative effect might also be associated with ruminative thoughts which often evolve around unattainable goals or losses. Nolen-Hoeksema (1996) describes rumination as mentally going over one theme repeatedly without progressing toward a solution. In this context, it is likely that people who cannot control the experience of their life longing start to ruminate about the content of their life longings. Rumination, in turn, can have negative consequences for well-being. In a longitudinal study with bereaved adults, Nolen-Hoeksema, Parker, and Larson (1994) showed that persons who ruminated on their negative emotions following the loss of their spouse experienced more severe and prolonged distress six months after their loss than persons who reported less ruminative thoughts (but see L. L. Martin & Tesser, 1996 who also discusses potential positive aspects of rumination, e.g., rumination as an attempt at discrepancy reduction). Thus, women who are not good at controlling the experience of their life longing to have children might be more prone to rumination and consequently show decreased well-being in contrast to those who are able to control their life longing experience and who presumably ruminate less about their unattainable goal to have children. It could be speculated that those who are good at controlling their life longing experience can "switch on and off" their longing-related thoughts and feelings about having a

child. As a result, these women might be better able to stop or distract themselves from the life longing if it becomes too negative. They may be better able to consciously focus particularly on the positive aspects of their life longing to have children (e.g., the imagination of holding a baby in one's arms, the imagination of being a family and caring for each other), and therefore it might be more likely that their life longing functions as a compensatory strategy to manage nonrealizability and loss.

At this point I briefly want to discuss an open conceptual question related to the control over life longings. As illustrated in more detail in Chapter 2.2.2, life longings are assumed to be characterized by two levels of controllability. Persons can have control over the experience of a life longing (as it was used in the moderator analysis described above) and they can have control over the realization of a life longing. Control over life longing realization could be interpreted as one indicator for the attainability of life longings. However, one core component of the definition of life longings is that they are unattainable, which seems to be in contradiction to the characteristic of control over life longing realization.³⁷ Thus, typically, control over life longing realization should be rather low. If control over the realization was relatively high this would be indicative of high attainability of the life longing, which would speak for the fact that the life longing could rather be a goal. However, there might be cases in which persons in principle have the means to attain something but because they focus on other things they do not actively pursue it as a goal but only at the level of imagination as a life longing. In addition, the assumption that life longings are unattainable is based on the notion that they have an utopian nature, that is, even if a person has (or believes to have) a certain amount of control over the realization of his or her life longings, life longings can never *fully* be realized. Admittedly, the conceptual (potential) discrepancy between the life longing definition and the facet of controllability deserve further theoretical elaboration and empirical testing.

³⁷ In contrast to control over life longing realization, having control over the experience of a life longing does not stand in contrast with the definition of life longings as being unattainable. Whether an individual is able to influence the onset, course, and ending of life longing related thoughts and feelings is independent from the attainability of the respective life longing.

The Moderating Effects of Accommodative Coping, Goal Disengagement, and Goal Reengagement

As outlined above, the general application of *accommodative coping* strategies in response to critical situations influences well-being directly and indirectly. First, in line with findings from other studies (Brandtstädter & Renner, 1990; Brandtstädter & Rothermund, 2002) I found that women with a high general ability to flexibly adjust to blocked goals or critical events reported higher psychological well-being, were happier, and less depressed. Second, the pursuit of the unattainable goal to have children at an imaginary level as a life longing was beneficial for those women who in general showed a high ability to flexibly adjust to critical situations. In contrast, having a strong life longing to have children was detrimental for women who were not good at flexible goal adjustment. In terms of the dual process model of self-regulation (Brandtstädter & Renner, 1990; Brandtstädter & Rothermund, 2002), accommodative processes come into play when assimilative strategies such as increasing effort toward goal attainment are no longer successful. This was the case for women in the present study. As for most women the use of assimilative strategies would not have brought them closer to goal attainment, they needed to shift to accommodative processes. As outlined in the theoretical part of this dissertation, the transformation of an unattainable goal into a life longing can also be understood as an accommodative coping strategy. This might explain why those women who generally showed high abilities to adjust to new or critical circumstances benefited from the goal – life longing transformation process whereas others did not.

Besides flexible goal adjustment, *disengagement* from the goal to have children and *reengagement* into alternative life goals was directly and/or indirectly related to well-being. Women who reported investing more energy into alternative life goals after their confrontation with the unrealizable goal to have children showed higher psychological well-being. In addition, when women reported strong disengagement from the goal to have children and strong reengagement into alternative life goals, the previously found negative relationship between life longing expression and well-being disappeared. This indicates that as soon as women strongly disengaged (i.e., withdrew effort *and* commitment) from the goal to have children and invested this energy into new goals, experiencing a life longing to have children was no longer associated with negative affect.

There was also a very interesting and somewhat surprising U-shaped relationship between life longing expression and well-being for those women who did not completely disengage from the goal to have children and/or who did not reengage as much into alternative life goals. For these women it was beneficial to have either a relatively weak or a

very strong expression of the life longing to have children. This result might be explained when relating it to findings on the transition groups. Women who had not yet completely disengaged from the goal to have children and who also did not reengage into alternative goals might be those who still retained the goal without a life longing to have children (i.e., women who are in the “before transition from goal to life longing stage”). Indeed, women in this group had relatively high scores in psychological well-being and happiness. In comparison, women who had not yet disengaged from the goal to have children and who did not reengage into alternative life goals might be those who, despite the unattainability of the goal, had particular difficulties in completely giving up effort and commitment to the goal to have children (i.e., especially women in the “in transition stage”). For them, it could be beneficial to substitute the goal to have children with a life longing. They would not need to withdraw cognitive-emotional commitment from their wish for children and could pursue their former goal at the level of imagination as a life longing. This substitution of the former goal with a life longing could function as a compensation strategy in the sense of the SOC theory and in the sense of the function of life longings to manage nonrealizability and loss. This form of compensation could explain why these women had relatively high scores on psychological well-being and happiness when reporting a strong expression of the life longing to have children.

The direct and indirect positive effects of goal disengagement, goal reengagement, and flexible goal adjustment on well-being as well as on health-related variables have been documented in many studies. In this regard, the findings of the present study are in accordance with previous work on self-regulatory behavior. For instance, cross-sectional studies by Wrosch and colleagues (e.g., Wrosch et al., 2007; Wrosch et al., 2003b) have shown that both goal disengagement and goal reengagement are associated with less perceived stress, higher levels of self-mastery, and less intrusive thoughts. Positive effects were also found in longitudinal studies: College students with higher abilities to disengage from unattainable goals at the beginning of a semester reported less physical health problems and a better sleep efficiency at the end of the semester (Wrosch et al., 2007). Another longitudinal study assessed the level of positive affect before and after the onset of a chronic illness in older adults (Duke et al., 2002). Those participants who reduced their activities after the onset of the illness but did not replace them with other types of activities reported lower positive affect than participants who reduced their activities but invested into other activities.

Not being able to attain the goal to have children may cause many women in the present study to be confronted with a particularly strong stressor or even a critical life event. Several studies have demonstrated the increased importance of self-regulation behavior in

such situations. Wrosch et al. (2003b) showed that parents of children with cancer were just as high in well-being as parents of healthy children. However, this was only the case when parents of children with cancer engaged in goal disengagement and goal reengagement. Young, B. B. Baltes, and Pratt (2007) investigated job and family stressors and the resulting work-family conflict and found that for those individuals who were in the most demanding situations (e.g., because they had young children at home or received only low family support) the use of SOC strategies was most effective. Similarly, in a study with older participants it could be shown that the use of SOC strategies was particularly relevant for subjective well-being in very old age, that is, when resources are most constraint (Jopp & Smith, 2006). Heckhausen and colleagues (2001) investigated self-regulation abilities and their consequences in a specific group of persons, namely, as in the present study, involuntarily childless women. The authors suggested that those women who passed the deadline for childbearing without having children needed to shift from goal engagement to goal disengagement, engagement in substitute goals, and self-protective interpretations or reappraisals. Women who made use of these compensatory (secondary) control strategies (in terms of the OPS model) reported higher well-being than women who did not disengage from their goal to have children or did not reengage into alternative life goals. The empirical data of the present study are consistent with these findings on the importance of self-regulation behavior in response to critical life events. They support the assumption that involuntarily childless women are in particular need of self-regulation strategies and that they can benefit immensely from their effective application.

In sum, this study only partly supports the theoretical assumption that the transformation of an unattainable goal into a life longing has the potential to be an adaptive process and thus, that life longings can serve the function of managing nonrealizability and loss. A positive pattern was found only under very specified conditions and needs further investigation.

5.4 General Implications of the Findings

What theoretical and practical implications do the findings of the present dissertation study have? From a theoretical perspective, this dissertation extends our knowledge on the newly introduced lifespan developmental conceptualization of life longings. In support of life longings as a viable developmental construct, it replicates earlier findings of functionality (Scheibe, 2005; Scheibe et al., 2007) and provides new insights into conditions under which life longings might be especially beneficial or not beneficial at all. This study was the first to

look at life longings from a developmental perspective and therefore offers initial insights into the emergence and developmental trajectory of life longings. In this context, it is suggested that life longings may develop out of identity-relevant, yet unattainable goals. The transformation of unattainable goals into life longings is proposed to represent a compensatory strategy to manage non-realizability and loss. Thus, the development of life longings is embedded in a functional context and can be interpreted in terms of an extension or special application of developmental self-regulation models suggesting compensatory (P. B. Baltes & Baltes, 1990), accommodative (Brandstädter & Renner, 1990) or secondary control processes (Heckhausen & Schulz, 1993).

Further, results of this study inform theories on goals and goal disengagement. As already described above, psychologists have predominately emphasized the positive side of goals. The present research identifies situations in which goal pursuit is not possible and thus can no longer lead to positive outcomes. Replicating existing empirical findings (e.g., Brunstein, 1993; Carver & Scheier, 1990; Klinger, 1975; Wrosch et al., 2003b), I found that goal pursuit is negatively related to well-being if the goal is perceived as unattainable. In addition, findings from this study further qualify theories on goal disengagement (e.g., Klinger, 1975; Wrosch et al., 2003a; Wrosch et al., 2003b) by showing that when persons are faced with unattainable goals, complete goal disengagement (i.e., the withdrawal of effort and commitment) is not the only pathway to maintain or regain well-being. Rather, withdrawing effort while staying cognitively and emotionally committed to the goal target can also be positively related to well-being if the commitment is continued at a level of fantasy in form of life longings.

There are a number of practical implications to be drawn from this study. First, results might further our understanding of childless middle-aged women. Childless women, especially if they identify themselves as voluntarily childless, are often stigmatized in our society (Miall, 1986). However, data from this study suggest that women's wish for children is subject to change and that women who are voluntarily childless in the present may have had a strong but unattainable wish for children in former times. Thus, a stigmatization of childless women is not only inappropriate in general, but it is especially painful for those who wanted to have children and could not realize this wish. This points to the need to educate the society more on the nuances of those women's situations.

Second, as pointed out in the theoretical framework of this study, many involuntarily childless women suffer from the fact that they cannot fulfill their goal to have children (e.g., Domar et al., 1992). As a consequence, they often seek psychological help. The finding that pursuing the wish for children as a life longing can have positive effects on well-being if goal

disengagement and investment into alternative life goals are difficult might have implications for psychosocial counseling situations. Typically, in psychosocial counseling with infertile couples it is suggested that it is necessary to change one's goal structures (L. F. Clark, Henry, & Taylor, 1991) and plans for a future without children (e.g., Stammer, Wischmann, & Verres, 2002). Findings of the present study might suggest an alternative approach, namely the possibility of pursuing the goal to have children at an imaginary level as a life longing. However, before advices for counseling settings can be given (e.g., women could be encouraged to keep imaginary scenarios concerning their wish for children as long as these scenarios are controllable, not too intense, and balanced with respect to positive and negative feelings) intervention studies are required to test under which specific conditions life longings have an adaptive potential.

5.5 Limitations of the Present Study

5.5.1 Limitations Concerning the Stage Approach and Cross-Sectional Study Design

In this chapter, I will elaborate on a number of limitations of the present study. Like in many other studies that investigate developmental processes, it was not possible to manipulate an independent variable and to assign persons randomly to groups. Instead, in order to inspect a relatively new phenomenon, naturally occurring effects, their quantity and quality as well as the change in their quality and quantity needed to be examined. However, from a quasi-experimental approach it was necessary to create groups in order to test the hypotheses of this study. In this context, one of the major critical methodological aspects was the application of median splits to create groups according to participants' goal expression and life longing expression. In comparison to continuous variables, using median splits leads to restrictions in the power of analyses, an underestimation of effect sizes, larger error variances, loss of information about individual differences, or the risk of overlooking nonlinear effects (e.g., Cohen, 1983; MacCallum, Zhang, Preacher, & Rucker, 2002). It is generally suggested that correlation and regression analyses are more appropriate when working with continuous variables. In the present dissertation the dichotomization procedure was used despite the described methodological problems. This was done because of the underlying theoretical assumption that the different groups represent qualitatively different stages in the process of transforming blocked goals into life longings. Without creating groups it would not have been possible to operationalize and investigate the assumed stages of the transformation process. In addition, groups are in general more easily communicable and understood.

The use of artificially created groups in order to examine an analog to the developmental trajectory of life longings points to another limitation, the investigation of a

developmental process with cross-sectional data. There is no question that processes like the one investigated in this dissertation can only be fully captured with longitudinal data (e.g., B. B. Baltes, 1968; P. B. Baltes, Reese, & Nesselroade, 1977; Schaie, 1965). In this regard, the ideal design for the present study would have been to examine women's wish for children and its expression as a goal and/or life longing over a longer time course. However, in order to explore the complete process with the beginning point and the possible termination point of a life longing, it would have been necessary to run a longitudinal study of at least 10 years duration, which was impossible within the temporal framework of a dissertation. In addition, with a relatively new phenomenon such as life longings it is important to obtain an initial snapshot (using an analog to change) to establish the developmental characteristics of life longings. This of course should be ideally followed up with longitudinal data.

In an attempt to partially overcome the problem of missing longitudinal data, a cross-sectional investigation was conducted on individuals who all shared the same life longing but were at different ages and presumably at different stages of the transformation process from goal to life longing. In addition to the fact that this approach cannot replace longitudinal assessments, there are some more limitations that should be noted. First, because women at different ages ranging from 35 to 55 years were asked about their wish for children, age and cohort effects might have been confounded. This, in turn, can affect the internal validity of the study because differences between age groups are unlikely to be due only to age effects. Over the last decades female emancipation led to changes in women's self-perceptions and societal expectations. A 55-year old woman in the present study might have been raised with different social norms regarding a woman's role than a 35-year old woman. This fact might be reflected in participants' responses to questions on their wish for children. However, it should be noted that women in their 50s already experienced the consequences of the women's movement. Thus, women aged 35 to 55 might be more similar to each other in terms of their understanding of the woman's role than one would initially expect. This would weaken then the potential problem of a confounding of age and cohort effects.

Second, it should be emphasized that age groups do not necessarily tell us anything about when the stages in the transformation process from goal to life longing occur. Depending on when a person was confronted with the blockage of a goal, the goal was likely to be transformed into a life longing. That is, independent of age women might be faced with the blockage of their goal to have children for reasons other than entering menopause. These reasons include finding out that one is infertile or realizing that there is no partner with whom the goal to have children can be fulfilled. Thus, both a woman at the age of 35 and 45 years could be confronted with the blockage of this goal. Consequently, they both could be in the

same stage of the transformation process although they were not in the same cohort. This implies that there may not only be differences between cohorts but also between persons within one cohort.

Third, as discussed in more detail above, even though the stage approach makes sense in order to approach the transformation process, the stages are more or less theoretical assumptions and the participants were assigned to these stages according to their expression of goal and life longing characteristics. Thus, it is only speculative that women are in the respective stages, that they passed previous stages, and that they would progress through the later stages of the transformation process. In more general terms, stage theories have often been criticized “because they do not do justice to the qualitative variability of human competencies and styles within and across ages, nor do they do justice to the multitude of qualitatively alternative courses of growth that a human may follow.” (Pascual-Leone, 1978, p. 118). This quote points again to the fact that there might be interindividual differences in the developmental trajectory of life longings and that a stage approach is unlikely to fully capture these interindividual courses of life longings.

5.5.2 Limitations Concerning the Sample

Regarding the sample of the present study, several limitations need to be considered. One of the most obvious limitations is that no men were investigated. Especially in the literature on childlessness it is a very often mentioned point of criticism that only data from women are assessed and that much less is known about (psychological) correlates and consequences of childlessness in men (Dunkel-Schetter & Lobel, 1991; Greil, 1997). The present study focused on women only, primarily because the biological deadline which represents the blockage of the goal to have children is more likely to appear and can be determined more objectively in women than in men. Moreover, the wish for children is assumed to be more relevant to the female identity and thus is likely to have more symbolic meaning in women than in men (Letherby, 2002a, 2002b). However, as a consequence of investigating only women, results of the present study cannot be generalized to men. Earlier studies have shown that men and women use different coping strategies when faced with infertility (Abbey, Andrews, & Halman, 1991; Jordan & Revenson, 1999). Assuming that the transformation of unattainable goals into life longings is a self-regulatory strategy, it would be interesting to investigate whether men are equally likely as women to use this transformation as a strategy for coping with the unattainability of the goal to have children.

Another limitation of this study addresses the chosen age range of participants (35 to 55 years). On the one hand, this age range could be too small to cover the full developmental

trajectory of life longings. There is no doubt that women who are younger than 35 years or older than 55 years could have the life longing to have children. Thus, especially with respect to the assessment of different stages of the life longing trajectory, it would have been fruitful to expand the age range and to see to what extent women who are in their sixties or even seventies express their wish for children as a life longing. Expanding the age range may have facilitated the identification of the starting point and (if existent) the ending point of life longings. In addition, a larger age range would also allow to test the assumptions that the process of transforming a goal into a life longing is relatively slow and that the positive effect of life longings on well-being is more likely to be observed at the tail end of the transformation process.

However, with an expanded age range one would also increase the likelihood that results are confounded with cohort effects. As described above, a confounding of age and cohort effects is possible for the chosen age range but not very likely. In contrast, responses to questions concerning the wish for children are much more likely to be influenced by cohort effects when a 25-year old woman is compared to a 65-year old woman. As stated before, through societal change and emancipation it might be more common and more accepted today than it was 40 years ago that women do not have children. Consequently, women in their twenties and women in their sixties could differ for instance in the relevance that the fulfillment of the wish for children has for their female identity, which, in turn, could influence the development and expression of the life longing to have children. This point should be seen as a strong argument against an increase of the age range and also speaks for the chosen age range.³⁸

Another limitation is related to the very heterogeneous reasons for not having children. For example, women were childless because of medical reasons, because they did not have a partner, because they postponed childbearing until they were too old to have children, etc. The various reasons might differentially influence the extent to which a woman develops a life longing to have children. For example, it might be the case that a woman who undergoes medical treatment in order to become pregnant is more likely to develop a life longing to have children than a woman who is involuntarily childless because she has postponed pregnancy too long. In order to address this potential confound variable, one could look at groups of women who share the same reason for being childless. However, several problems would be

³⁸ In the other direction, someone could argue that the age range was too large. However, a decrease in the age range would have made it impossible to include women before and after the naturally occurring blockage of the goal to have children (i.e., entering menopause).

related to this strategy as well: Reasons for being childless are subject to change over time and findings could be limited in terms of their generalizability. In the literature on involuntary childlessness it is criticized that samples often only consist of women who receive infertility treatment (e.g., Dunkel-Schetter & Stanton, 1991). Thus, it might be a good strategy to examine a more heterogeneous sample but to (statistically) control for different reasons for being childless.

For some analyses in the present study three groups of women were compared to each other: women who never had a wish for children, women who currently were voluntarily childless but who had been involuntarily childless in former times, and women who were currently involuntarily childless. The grouping was based on self-reports about whether participants were voluntarily or involuntarily childless. However, some researchers suggest that such a distinction between voluntarily and involuntarily childless can be problematic because the classification might change relatively quickly and might not be objective (Connidis & McMullin, 1996; Jeffries & Konnert, 2002). For instance, one third of all women in the study by Jeffries and Konnert who were classified by the experimenter as involuntarily childless, classified themselves as “childless by choice”. As reported above, several women in the present study reported having changed their “status” from involuntarily to voluntarily childless. This might indeed reflect a coping strategy to deal with involuntary childlessness.

Finally, as already pointed out above, I focused only on one specific life longing (in one specific sample). The developmental trajectory of life longings may have a different pattern or shape and different consequences for well-being for other domains of life.

5.5.3 Limitations Concerning the Assessment

All information in the present study were assessed with self-report measures. The validity of self-report data is limited in that the researcher obtains information only on mental processes that are consciously represented in a person’s mind and introspectively accessible (e.g., Finke, 1989; Nisbett & Wilson, 1977). Furthermore, personal reports can be biased in several ways. First, participants could answer in a socially desirable manner (e.g., Weber & Cook, 1972) or in a way that conforms to what they think the purpose of the study is. However, it is not obvious why the topics assessed in the present study should be especially prone to social desirability or demand characteristics, particularly because the study was not advertised as a study on life longings and the wish for children. Thus, participants did not know in advance that these were the topics of major interest. Second, self-reports are personal reconstructions (of the past) and can be influenced by memory biases. This bias can occur especially when retrospective data are used. Asking persons retrospectively for information

such as the intensity of their wish for children at given time points in their lives demands that they can accurately remember this information. Accordingly, autobiographical memories are prone to errors of forgetting, wrong recall, self-enhancement effects, and delusion (Blane, 1996; Hyman & Loftus, 1998; Reimer, 2001). However, empirical studies showed that factual variables but also self-relevant information (like in the present study) are more likely to be recalled accurately (Berney & Blane, 1997; Field, 1981), whereas attitudinal variables and detailed events are remembered less consistently or more positively, especially in the case of long time periods (Field, 1981; Kennedy, Mather, & Carstensen, 2004; Woodruff, 1983). Thus, for the present study it cannot be ruled out that retrospective information on the wish for children were remembered inaccurately. However, these retrospective information give at least an approximation of the actual intensity of the women's wish for children across their lifespan.

With respect to the assessment of retrospective data, there is empirical evidence that assessing the past or future is easier if persons evaluate their present status first (e.g., Fleeson & Baltes, 1998), so that they can use their actual status as a reference point. Therefore, a so-called backward recall is recommended for the assessment of retrospective data and a forward recall for the assessment of prospective data (Sudman, Bradburn, & Schwarz, 1996). In the present study all scales were assessed first for the present, then (backward) for the past, and then (forward) for the future.

Another limitation regarding the measures of the present study refers to the assessment of goal expression and life longing expression. Whereas life longing expression was assessed with 22 items representing six interrelated factors, goal expression was assessed with only five items representing a single factor. Thus, the measurement representation of life longings was much more detailed and complex than that of goals. Further, it needs to be taken into account that only one dimension of goal characteristics was assessed, namely action intention, that is, the effort that was put into fulfilling the goal to have children. Another important dimension of goals, namely commitment, was not assessed. However, the literature suggests that the effort that is put into goal attainment is a good indicator for distinguishing between goals and life longings (Mayser et al., in press; Scheibe & Freund, *subm.*). Moreover, commitment to a certain target is characteristic for both goals and life longings and is thus less likely to differentiate well between both constructs.

5.6 Directions for Future Research

The findings of this study suggest a number of ideas for future research to be conducted on the relatively new psychological construct of life longings. Most of these ideas

build upon the specific topic of the developmental trajectory of the life longing to have children and attempt to overcome the limitations of the present study.

5.6.1 Process Analysis With Longitudinal Data

Most importantly, in order to expand the investigation of life longings from a process perspective, longitudinal data should be collected. It would be interesting to repeatedly examine the sample from the present study along specific time intervals over the next ten or more years and to investigate how these women's goal or life longing to have children change over time. By doing this, it would be possible to validate the proposed assumption that there are different stages of a transformation process from unattainable goals to life longings. In addition, a group of women younger than 35 years could be added to the sample and repeatedly measured. This would help to understand the starting point of the transition into life longings.

Furthermore, within the longitudinal assessment of the life longing process, a daily experience sampling study could be included. Using daily diary methods, several times a day on numerous consecutive days, women could be asked to fill out questionnaires on their current expression of the life longing to have children, on mood, psychological and physical health, and on situational variables (see for instance Riediger & Freund, 2004; Riediger et al., 2005 for diary studies assessing goal pursuit). The application of diary methods is well-suited to "study change processes during major events and transitions" (Bolger, Davis, & Rafaeli, 2003, p. 579). A daily diary study would represent an ecologically more valid assessment of characteristics of the short-term course of life longings than a laboratory study in which we ask for retrospective reports. Such characteristics could be events or situations that triggered short-term life longing episodes or emotions and thoughts related to the current activation of a life longing. In particular, it would be promising for the daily diary approach to select a group of women who are in the "in transition stage". It can be speculated that these women show the greatest amount of change in this short time period.

5.6.2 Examination of Couples and Specific Groups of Persons

As outlined above, data on the wish for children in men are rare. Therefore, one goal for future research could be to investigate the nature and functionality of the life longing to have children in men. Ideally, however, couples should be examined. Analyses at the dyadic level would make it possible to gain information that goes above and beyond the individual level. Such data would provide insights into similarities and differences within couples in the experience of the (un)attainability of the goal to have children and the developmental

trajectory of the life longing to have children. It would be interesting to compare each partner's perspective on their own and the partner's wish for children and to look at possibly resulting interaction effects.

With respect to the life longing to have children, it would be exciting to focus on specific groups of persons, such as couples who adopted a child. One could for instance examine the research question whether the adoption of a child terminates the life longing to have children. Therefore, characteristics of the life longing to have children should be assessed before and after adoption takes place. On the one hand, statistics show that many couples are willing to go through the difficult process of adopting a child (Engstler, 1998). On the other hand, however, in personal conversations after testing sessions, several women who participated in the present study indicated that they would not take into consideration adoption of a child because it would not be comparable to having an own child and it would not stop the life longing to have one's own children. What distinguishes women or couples who are willing to adopt a child from those who are not? Are their life longings to have children comparable to each other with respect to structure, controllability, or functionality?

Another interesting group in this context would be persons with children who want to have more children but cannot attain this goal. For them the personally perceived discrepancy between goal expression and life longing expression should be particularly pronounced because these persons experienced both cases: being able to fulfill the goal to have children and being confronted with the blocked goal to have children.

5.6.3 The Role of Potential Covariates

In the present study, several potential covariates such as social support, women's attitudes towards and motives for having children, and personality traits were not taken into consideration. In future research on the life longing to have children, it would be interesting to investigate the role each of these variables play. Social relationships and social support may influence how childless women deal with their unattainable goal to have children and both factors may influence the development and trajectory of the life longing to have children. There is empirical evidence from the infertility literature that women, more so than men, use social support as a strategy for coping with the stress resulting from involuntary childlessness (Abbey et al., 1992; Amir, Horesh, & Lin-Stein, 1999; Jordan & Revenson, 1999). Further, research in health psychology has pointed to the positive effect of received social support in the context of dealing with critical health-related events such as cancer surgery (e.g., Schwarzer & Leppin, 1991; Schwarzer, Luszczynska, Boehmer, Taubert, & Knoll, 2006).

Similarly, social support could be expected to positively influence how one deals with the life longing to have children.

Moreover, attitudes and motives concerning the wish for children may influence the developmental trajectory and functionality of the life longing to have children. As outlined in the theoretical part of this thesis, women differ in their attitudes towards and motives for having children (e.g., Stöbel-Richter & Brähler, 2000). Thus, it could be investigated whether specific attitudes and motives for having children are more likely to be linked to the emergence of a life longing to have children.

Finally, it has been shown that personality traits are related to the extent to which persons invest in several life domains (e.g., Lodi-Smith & Roberts, 2007). Persons who are high on agreeableness, conscientiousness, and emotional stability tend to show more social investment into family life. In this context, it would be interesting to explore whether the development of a life longing in a certain domain (or specifically, the life longing to have children) is related to different sets of personality traits as well. Further, previous studies have shown that neuroticism is positively related to depression and negative affect (Clarke, 2004; Costa & McCrae, 1980) and partially mediates the effect of variables such as locus of control on depression. Thus, when looking at the relationship between life longing and well-being the possible moderating or mediating role of neuroticism should be investigated.

5.6.4 Investigations Beyond the Specific Life Longing to Have Children

In the present dissertation, the developmental trajectory of a single life longing was examined. In order to increase the generalizability of these findings, longitudinal investigations should be conducted with other life longing relevant topics. One such life longing topic could be partnership. In the studies that were run within the Life Longing project at the Max Planck Institute for Human Development, partnership longings were among the most frequently mentioned life longings (see Scheibe et al., in prep.). How similar is the developmental trajectory of life longings regarding partnership to the developmental trajectory of the life longing to have children? What specifically are partnership-related life longings about? Are they fulfilled as soon as someone finds a partner or do they continue to exist even after a partner is found, that is, are they related to a specific process? In this context, Belk and colleagues (2003) argue that persons pass through a cycle of desire: As soon as the desired object is possessed, it loses its attractiveness and persons start looking for new objects they can long for. It would be interesting to investigate whether this applies to the life longing to have a partner as well.

Beyond the examination of the development of specific life longings, it is necessary to assess life longings more objectively, that is, in experimental studies in order to complement the correlational studies. For example, mood induction techniques (e.g., using music or picture, cf., Gerrards-Hesse, Spies, & Hesse, 1994; Westermann, Spies, Stahl, & Hesse, 1996) could be used to induce life longing related thoughts and feelings in order to assess the online process of life longings (see also Böhmig-Krumhaar, Staudinger, & Baltes, 2002; Glück & Baltes, 2006 on the induction of wisdom). In addition, it would be interesting to investigate how the induction of life longing related thoughts and feeling is associated with more objective outcome variables such as cognitive performance. Several studies showed that the induction of mood can affect for instance word association speed, physiological arousal, or memory retrieval (for overviews see D. M. Clark, 1983; Kenealy, 1986). In this context, it could be examined whether participants who received an induction of life longing related thoughts and feelings differ in solving cognitive tasks from participants without the induction.

Regarding the functionality of life longings, it would be interesting to find out in interview studies when and why individuals perceive their life longings as functional/adaptive versus dysfunctional/maladaptive. Moreover, the study of the functionality of life longings would benefit from identifying functional and dysfunctional life longing profiles, that is, which specific characteristics does a life longing need to have in order to be related to indicators of positive versus negative development.

In Chapter 5.3.3, the effects of self-regulatory strategies on the relationship between well-being and life longing expression have been described. However, it is important to note that flexible goal adjustment or goal disengagement are typically not intentionally chosen (Brandtstädter & Rothermund, 2002). Similarly, it is unlikely that persons can consciously decide to pursue an unattainable goal as a life longing. Exploring underlying variables (e.g., personality variables) that distinguish between persons who are good at using these types of strategies and those who are not good at it would be an interesting and promising avenue for future research.

5.7 Conclusion

The goal of this dissertation was to elucidate the developmental trajectory and functionality of life longings. In this sense, the present study represents a unique contribution to the investigation of the concept of life longings that was introduced into the (developmental) psychological literature only recently (P. B. Baltes, in press; Scheibe et al., 2007). Coming from a lifespan theoretical perspective, it was assumed that life longings can develop when identity-relevant goals cannot be attained and that the pursuit of an unattainable

goal at an imaginary level as a life longing can be understood as a compensatory self-regulatory strategy in the sense of the SOC theory (P. B. Baltes & Baltes, 1990). Using the example of involuntary childlessness, from the present study it can be cautiously concluded that women who cannot attain their goal to have children are likely to transform this goal into a life longing. In general terms, findings suggest that individuals may go through different stages of this transformation process: a first stage, in which the goal is actively pursued, a second stage, in which a target is simultaneously represented as a goal and a life longing, and a third stage, in which the target is no longer pursued as a goal but is represented as a life longing.

The continued pursuit of an unattainable goal as a life longing was found to be beneficial only for those individuals' well-being who reported, in general, to make use of accommodative coping strategies, who had a strong sense of control over the experience of their life longing to have children, and for participants who had particular problems in disengaging from the goal to have children and reengaging into alternative life goals. It can be estimated that about one third of all women in this study who had or had had a wish for children belonged to the group for who the life longing to have children had positive effects on well-being. Under the conditions specified above, the pursuit of an unattainable goal at the level of fantasy as a life longing can in fact be seen as a compensatory strategy to deal with nonrealizability and loss. In this regard, the transformation of an unattainable goal into a life longing reflects not only a developmental process but also demonstrates how this process can be embedded in (or even driven by) the function of life longings to help individuals managing nonrealizability in life. The present dissertation tries to capture this linkage between development and functionality in the theoretical tradition of lifespan developmental psychology. However, future research, especially with longitudinal data, is needed to explore in more detail how the developmental trajectory of life longings manifests itself over long time periods, whether other avenues for the development of life longings are possible, and how these processes can be integrated into a functional perspective of successful development.