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Social Participation in Very Old Age: Cross-Sectional and Longitudinal Findings From BASE

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Social participation, defined as socially oriented sharing of individual resources, is often regarded as an important criterion of quality of life in old age. We distinguished three types of participation with respect to content, context, and resources required to participate: collective, productive, and political participation. Data from the multidisciplinary Berlin Aging Study were used to describe social participation of a very old population and to examine individual differences and changes over time. Analyses showed that social participation is cumulative. Individuals who engaged in political activities also took part in the other two types, and those who engaged in productive activities also participated in collective activities. Although many persons changed their social participation over the 4-year period, the cumulative pattern within the population remained unchanged. Educational and occupational resources were positively related to the intensity of social participation in old age, but changes in social participation could be better explained by age and health.

SOCIAL participation is a central topic in research on aging. When people enter old age, social participation changes because of life cycle transitions (e.g., retirement, empty nest), and in later years it can be expected to change again because of declining individual capacities (physical and mental health). Numerous studies have considered the consequences of inter- and intraindividual differences in social participation (e.g., Lefrancois, Leclerc, & Poulin, 1998; Van Willigen, 2000). This article leaves consequences aside and concentrates instead on the causes and patterns of change in social participation.

Because of the sheer number of studies and the variety of definitions of social participation, it is impossible to give a summary of the findings of previous research in this context (for a review, see Graney, 1982; Kohli & Künemund, 1995). However, there are some common findings with respect to sociodemographic correlates of social participation in old age (e.g., Bury & Holme, 1991; Connidis & McMullin, 1992; Mayer, Maas, & Wagner, 1999; Moen, Robinson, & Fields, 1994; Pohjolainen, 1991; Stanley & Freysinger, 1995; Verbrugge, Gruber-Baldini, & Fozard, 1996). Positive associations were found between the level of social participation, general activity level, and several indicators of socioeconomic status. Even after retirement, older men are more likely to be engaged in paid work outside the home, in political activities and clubs, whereas older women more often take care of children (or grandchildren) and do more volunteer work and caregiving outside the home. Married older people usually perform more social activities than singles. Age and health problems are negatively associated with the level of social participation. Physical and mental disability have a strong negative impact on every kind of activity.

In our view, research on social participation would gain from a more theoretically founded definition of social participation. Most studies either considered only one of its particular types (e.g., productive activities: Glass, Seeman, Herzog, Kahn, & Berkman, 1995; Herzog, Franks, Markus, & Holmberg, 1996) or used an aggregated indicator of social participation (e.g., number of social activities), without considering that such aggregations give fundamentally different forms of social participation equal weight (for an overview, see Mangen & Peterson, 1982). Given the assumption that participation involves acts of receiving goods (love, help, etc.) from others, as well as providing them, we defined social participation in terms of the consequences of activities for the social environment.

This article addresses three topics. First, we investigated whether our theoretical definition of social participation is a useful instrument to describe actual social participation in old age. Second, we described patterns of and changes in social participation in old age using cross-sectional and longitudinal data from men and women in the Berlin Aging Study (BASE). Finally, we tested hypotheses about the determinants of interindividual differences and intraindividual change in social participation.

A Theoretical Conceptualization of Social Participation

Social participation occurs in the conduct of actions in which individuals share (a part of) their resources with others. On the one hand, through socially oriented sharing, resources are contributed to the social environment. Self-oriented sharing, on the other hand, entails resources being taken from the environment. The socially oriented sharing of individual resources represents the genuine phenomenon of social participation (see also Schmied, 1996).

Types of social participation can be distinguished on the basis of the resources that are shared. We considered three types: collective, productive, and political participation. Although these types of social participation can take many different forms (e.g., productive participation includes both child care and managing a sport club), the various activities within a certain type have the sharing of a specific resource in common.

Collective social participation activities were defined as

the common acting of group members, whereby the intention is directed toward the group itself and not toward reaching an outside goal. The main resource that is shared among the group members is time. Further input or output of goods is possible but not required (e.g., playing cards and travelling together with others). *Productive social participation* was defined as the rendering of services, goods, and benefits for others (Herzog, Kahn, Morgan, Jackson, & Antonucci, 1989). The intention is oriented toward other individuals or groups. Besides time, other resources such as special abilities and competencies are shared (e.g., caregiving, paid and volunteer work). *Political participation* involves acts of decision making about social groups and the allocation of resources (e.g., Ballard, 1981). These decisions are services that are rendered by certain groups (e.g., political parties) or by single persons in a collective context. Besides time and special skills, additional resources such as social knowledge and social competence are shared (Rogers, 1974).

This delineation of the three types of social participation suggests a hierarchical accumulation of shared resources. At the bottom of the hierarchy is collective participation, in the middle productive participation, and at the top political participation. Participation in an activity is usually less common when the activity requires that more individual resources and abilities are shared (Diekmann, 1995). At the population level, political activities should thus show the lowest participation rate and collective activities the highest rate.

At the individual level, expectations are not so clear. Because of the increasing demand of individual resources and abilities, individuals who are able to take part in a more demanding social participation type are also able to take part in less demanding ones. However, individuals may choose not to take part in all social participation types that they could in principle perform. They can also be selective in their activity patterns and concentrate on those activities that are most interesting and satisfying for them (e.g., Baltes & Baltes, 1990). We therefore considered it an empirical question whether actual behavior is selective or cumulative.

Social Participation, Individual Life Courses, and Current Life Situations

We now turn to the questions of interindividual differences and intraindividual changes in social participation in old age. Though we agree that interest in the social environment influences an individual's social participation, we sought the explanation for differences and changes in social participation in the differential possession of resources and changes therein (cf. Becker, 1976). This is in line with our definition of social participation and it builds on some important sociological approaches of social participation in old age. For example, Gubrium's (1973) socio-environmental theory stresses the importance of "activity resources." Social exchange theory argues that the social bargaining position of old people is directly related to the amount of resources they possess (Dowd, 1980). The age stratification model of Riley and her colleagues emphasizes inequality as a central aspect of age systems (Riley, 1994). Finally, continuity theory suggests that as the person's resources and abilities increase, the ability to continue in social roles increases (Covey, 1981).

The general idea that guided our hypotheses was that the more required resources individuals possess, the more likely they are to participate. As discussed before, collective social participation requires the possession of time. Because older people don't have to meet certain obligations that younger people have (work, care for small children), they certainly have enough time to participate in social activities, even though they need more time than younger people for personal care and household activities (e.g., Horgas, Wilms, & Baltes, 1998). Productive and political activities require the possession of certain capacities and competence that enable persons to render services to others or contribute to decision-making processes. Occupational careers may be sources of these capacities. Services rendered to others during leisure time or after retirement may be similar to those that were part of an individual's occupation in midlife. Given this, we expected that interindividual differences in social participation in very old age, and especially gender differences, can be explained by differences in men's and women's education and occupational career. The hypotheses presented above only apply to interindividual differences in social participation. Time, education, and occupational experiences are more or less stable in old age. According to these hypotheses, differences in social participation between persons of different ages can only be the result of cohort differences in the access to higher education and occupational success.

With respect to change in social participation we expected that with age increasing health restrictions and changes in marital status lead to a reduction of social participation. However, persons who possess more educational and occupational resources should be able to continue to participate longer than persons with fewer resources, even after their health declines. Changes in marital status may play a similar role as changes in health. Having a partner is a potential resource that positively influences social participation. Not only is it probably more fun to perform social activities together, but also, individuals have more time for such activities if their partner shares everyday routines at home (Andersson & Stevens, 1993). We expected that losing one's partner, just like health restrictions, negatively affects social participation in old age.

METHODS

We used data from the baseline (T1) and follow-up wave (T3) of BASE. Detailed information about the design of BASE is published in Baltes and Mayer (1999) and about the longitudinal sample in Smith and colleagues (2002).

Measures

Social participation.—At both T1 and T3 participants in the study were asked whether they had participated in 11 activity domains (hobby, travelling, day trips, sports, culture, games, education, art, dancing, voluntary social engagement, and politics) during the year before the interview and were prompted to describe their specific engagement (e.g., in the case of sport, participants might have said that they did swimming or gymnastics; Mayer, Maas, & Wagner, 1999). The respondents named 119 (T1) and 89 (T3) different

activities. In addition, information about the context of the activities (whether alone or with others) was gathered.

The operationalization of our theoretical concept "social participation" and its different types must consider, on the one hand, the content and the social meaning of the activity, and, on the other hand, its context. The content of each of the 119 activities in the case of T1 and each of the 89 activities in the case of T3 was examined with regard to whether socially oriented sharing of individual resources took place by performing this activity. Seventy-one activities (T1) and 54 activities (T3) did not meet this criterion (e.g., singing, car driving, collecting). All activities named in the domain "voluntary social engagement" were directly classified as productive participation and those in the domain "politics" as political participation. In addition, activities from other domains were sometimes classified as productive participation because of their content: for example, giving lectures (domain "hobby") and conducting (domain "art"). The remaining activities were classified as collective participation or no social participation using information on their context. For example, travelling was only considered as collective participation if it was performed with others. Three dichotomous variables—one for each type of social participation—were generated indicating whether an individual participated during the last year.

Life course and current life situation characteristics.—Using the detailed occupational histories that were gathered in the sociology interviews (see Mayer, Maas, & Wagner, 1999), we operationalized educational and occupational resources by level of education, number of years in the labor market and occupational status. Level of education was measured by the number of years one would normally need to reach this level. Occupational status was measured using Wegener's prestige scale (Wegener, 1988). These variables are constant in old age.

The current life situation measures consist of marital status (living with or without a partner) and indicators of health status at T1 and T3. Functional health was measured by a score of ten basic activities of daily living using the Barthel-Index (Steinhagen-Thiessen & Borchelt, 1999). In order to indicate mental health the Short-Mini-Mental-Cut Off is used (Helmchen et al., 1999). Finally, we used living in a nursing home or clinic as an additional indicator of health restrictions.

Factor analysis was used to summarize the indicators of occupational resources and health. Education and occupational prestige could be combined to one factor (T1: eigenvalue = 1.28, 32% of variance explained; T3: eigenvalue = 1.56, 32% of variance explained). The health indicators and institutionalization loaded on a second factor (T1: eigenvalue = 2.1, 35% of variance explained; T3: eigenvalue = 1.64, 33% of variance explained). Factor scores were used instead of the single indicators in all analyses.

Guttman's Scaling

The question of whether social participation is selective or cumulative was empirically investigated by means of a scaling model. Each scaling model is based on a certain trace line function. This function describes the probability p of an affirmative response to an item j, depending on the position of the respondent on the latent dimension T (Diekmann, 1995). In the case of cumulative social participation we expected a monotonous item function: At higher values of the latent variable T, the probability of an affirmative response can only be equal or larger, but not smaller. Guttman's scaling model assumes such an item function (e.g., McCutcheon, 1987). The coefficients of reproducibility ($CR = 1 - E_2/[kn]$, where E_2 is the sum of incorrect responses, k is the number of items in the scale, and n is the number of respondents) and of scalability ($S = [E_1 - E_2]/E_1$, where E_1 is the sum of the item-specific marginal minimums) were used to decide whether the Guttman scale fit the social participation data.

Ordered Probit Model

As a result of the analyses with Guttman's scaling model, we could order the three types of social participation on one dimension. An ordered probit model was used to estimate possible influences of various predictors on social participation in old age. For a variable with four categories (0 = no social participation, 1 = collective participation only, 2 = collective and productive participation, 3 = collective, productive, and political participation) the model was specified as follows: $y_i^* = \beta' x_i + \varepsilon_i$, $\varepsilon_i \sim N[0,1]$, where $y_i = 0$ if $y \leq \mu_0$, $y_i = 1$ if $\mu_0 < y \leq \mu_1$, $y_i = 2$ if $\mu_1 < y \leq \mu_2$, and $y_i = 3$ if $y > \mu_3$ (Zavoina & McElvey, 1975). The observed counterpart to y_i^* is our ordinal variable y_i. Aside from a set of β parameters, the model provides μ parameters indicating the distance between the categories of social participation on the underlying continuous dimension. We used the LIMDEP statistical package to estimate these models (Greene, 1998).

Results

Relationships Between the Three Types of Social Participation

We first tested the hypothesis that the three types of social participation form a hierarchy and participation is cumulative. Both at T1 and T3, participation in collective activities was largest (T1= 77%, T3 = 88%), followed by participation in productive (T1= 10%, T3 = 12%) and political activities (T1= 6%, T3 = 5%). These results give first support for the theoretical assumption about the hierarchy of the three social participation types.

For the hypothesis to be true, however, there should also be few persons who perform demanding activities but who do not participate in the less demanding ones. If we designate an affirmative response as 1 and a negative response as 0, four of the eight possible response patterns are considered correct, in the sense that they describe cumulative patterns of social participation: (C[ollective social participation] = 0, Pr[oductive social participation] = 0, Pol[itical social participation] = 0), (C = 1, Pr = 0, Pol = 0), (C = 1, Pr = 1, Pol = 0), and (C = 1, Pr = 1, Pol = 1).

For both men and women at T1 and T3, response patterns that are not congruent with cumulative participation ("errors") were rare. At T1, from 516 response patterns only 22 deviated from the cumulative pattern. At T3, there were only 7 error patterns from 206. Men at T1 were most likely to

deviate. However, for men and women, and for T1 and T3, the two most important measures of Guttman's scaling—the coefficient of reproducability (CR) and the coefficient of scalability (S)—were well above the commonly accepted minimum of 0.9 for CR and 0.6 for S (McCutcheon, 1987). These results suggest that the items represent a valid scale and are unidimensional and cumulative. Thus, social participation in old age is better described as accumulation than as selection.

We proceeded by measuring the latent construct "intensity of social participation" by an ordinal variable with four categories: 0 = no social participation, 1 = only collective participation, 2 = productive and collective participation, and 3 = political, productive, and collective participation.

Age, Gender, and Longitudinal Differences in Social Participation

Our next question concerned the pattern of social participation of men and women in the various age groups. Figure 1A shows social participation by age at T1. As a result of the stratified sample there were 86 persons and equal numbers of men and women in each age group. In all age groups persons were found in all four categories of social participation. Collective participation was always most common. The level of social participation decreased with age: After the age of 90 more than 30% of the older people were socially inactive. At this age productive and political participation become rare.

Figure 1B presents the social participation for the 206 respondents who took part in T1 and T3. Because of longitudinal attrition, in these analyses there are unequal numbers of participants in the age groups. A striking difference between Figures 1A and 1B is the almost disappearance of no social participation in the latter. Obviously, persons are unlikely to stay in this state for a longer period. Almost all socially inactive persons at T1 were no longer in the study at T3. In general, the social participation patterns can be characterized as quite stable over the 4 years between T1 and T3 ($\kappa = .42, p < .001$). There are, however, clear differences between age groups at both points in time (Spearman's $\rho_{T1} = -.21, p < .01$; Spearman's $\rho_{T3} = -.22, p < .01$). For the three oldest age groups at T3 there is a reduction of the hierarchy of types of social participation: After the age of 85 the hierarchy consists only of three levels: productive, collective, or no participation. Among members of the two oldest groups only two levels are visible: They either perform only collective activities or do not participate at all.

For men (m) and women (w) separately we reached the same conclusion about the stability of the general response patterns between T1 and T3 ($\kappa_m = .47, p < .001$; $\kappa_w = .33$, $p < .001$). Also, in both groups there is a reduction of the social participation hierarchy with age (Figure 1C). However, an important difference between social participation of men and women is the higher participation of men aged 70 to 80 in political activities (Adjusted $\text{Residuals}_{T1} = 2.1$; Adjusted $\text{Residuals}_{T3} = 2.2$). After the age of 80 men also redraw from political activities and the gender differences disappeared.

The main result from this part of the analyses is that on the aggregate level there is relative stability in patterns of social participation over the 4 years between T1 and T3. Behind this finding, however, several patterns of individual change can be hidden (Collins, 1996). Individuals can either show as little change as the aggregate, or aggregate stability may be the composition of individuals changing in different directions. The latter seems to describe individual changes in social participation best. There appears to be a mixture of stability, reactivation, and reduction of social participation. One hundred twenty-four (87%) respondents who performed only collective activities at T1 still did so at T3. Most surprising is that 11 of 20 socially inactive persons at T1 took part in social activities at T3. The groups of participants in political and productive activities lost about half of their members between T1 and T3: 10 of 18 in the case of political participation and 13 of 25 in the case of productive participation.

Determinants of Social Participation in Very Old Age

Table 1 reports ordinal probit models for the intensity of social participation at T1 ($N = 516$) and at T3 ($N = 206$). In the case of ordinal probit regression only the sign and not the size of the coefficients can be interpreted directly (Greene, 1998). The first model (T1) is estimated to test the hypotheses that the intensity of social participation is positively affected by the possession of educational and occupational resources, by health, and by marital status. We expected gender differences in social participation to be small after these resources are taken into account. This last hypothesis was supported by the data. The significant differences in social participation that were visible in the bivariate analyses disappeared in Model 1. Instead, the intensity of social participation at T1 was positively connected with educational and occupational resources. Younger and healthier persons were more likely to participate in social activities. Against our expectations, there were no independent effects of employment duration and marital status.

The threshold parameters, μ_0, μ_1, and μ_2, give an indication of the distance between the categories of the ordinal dependent variable on the underlying dimension "intensity of social participation": μ_0 indicates the position of the border between the no social participation and collective participation only categories (μ_0 was not included in Table 1 because it is by definition 0); μ_1 describes the border between collective participation only and productive and collective participation; and μ_2 describes the border between productive and collective participation and political, productive, and collective participation. Obviously, productive participation (between 2.14 and 2.62) and political participation (above 2.62) are rather close on the underlying dimension of social participation. Collective participation (between 0 and 2.14) covers a much larger area of more intensive and less intensive social participation.

Our primary objective of the longitudinal analyses was to examine whether resources that positively affect social participation at T1 also have an influence on the maintenance of social participation. Therefore, we estimated a second model with participation at T3 as the dependent variable that took social participation at T1 into account. As expected, the best predictor of social participation at T3 was social participation 4 years earlier. The change in social

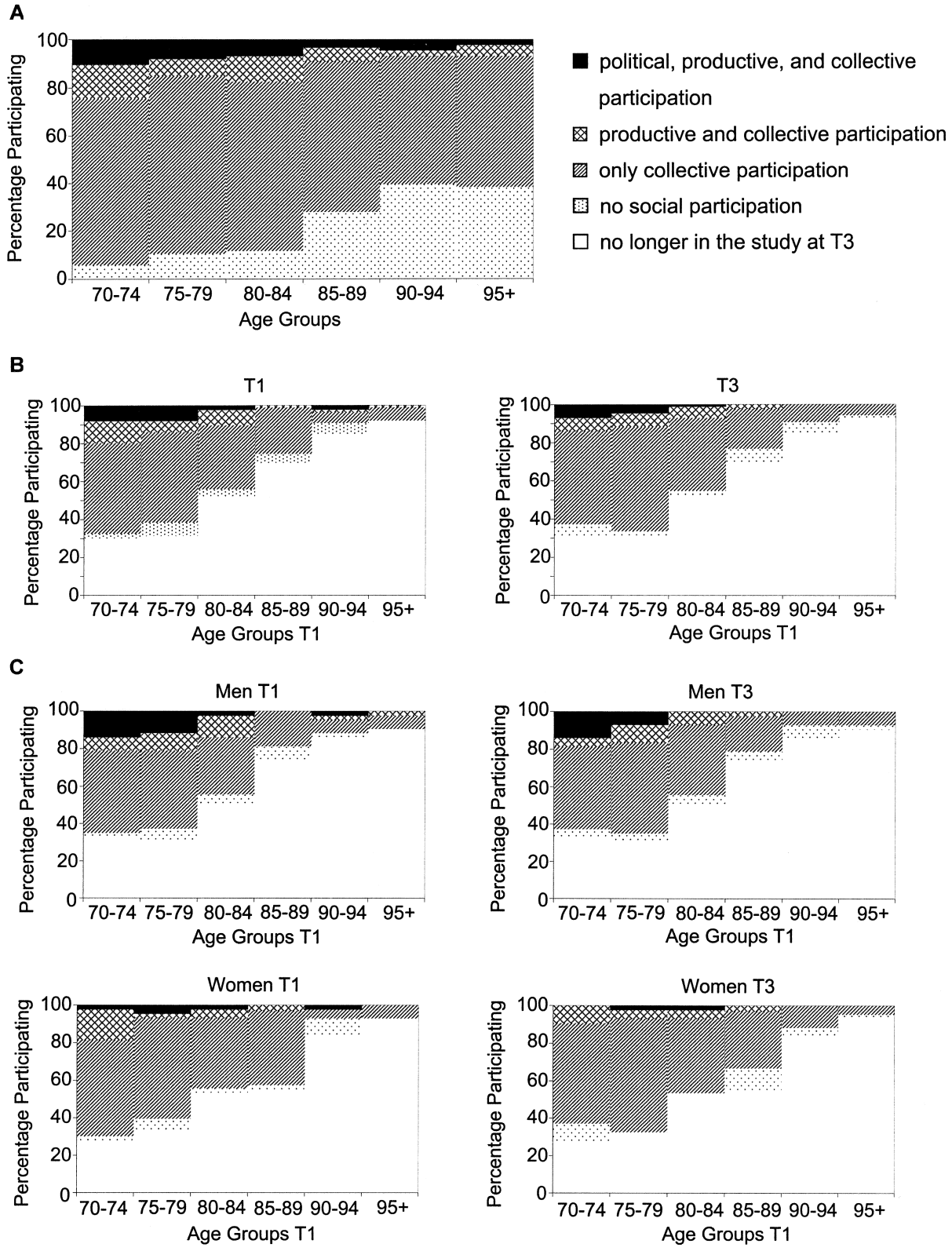

Figure 1. Social participation in the Berlin Aging Study. **A**, In six age groups at Time 1 (T1; $N = 516$); **B**, in six age groups at T1 and Time 3 (T3; $N = 206$); **C**, in six age groups by gender at T1 and T3 (men, $N = 101$; women: $N = 105$).

Table 1. Predictors of Social Participation: Ordinal Probit Regression Coefficients (and Standard Errors)

Variable	Model 1	Model 2	Model 3
Constant	3.06*** (.62)	2.89* (1.20)	1.65 (2.54)
Gender	.07 (.13)	.37 (.30)	.41 (.31)
Employment duration	.01 (.05)	.02 (.01)	.02 (.01)
Factor "Career"	.18*** (.05)	.15 (.11)	.12 (.13)
With partner	.21 (.13)	.25 (.25)	.26 (.25)
Factor "Health"	.31*** (.06)	.22* (.11)	.18 (.16)
Age	−.03*** (−.01)	−.03* (.01)	−.01 (.04)
No social participation[a]		−.50 (.30)	−.48 (.31)
Productive and collective participation[a]		.96*** (.27)	.96*** (.28)
Political, productive, and collective participation[a]		1.89*** (.32)	1.88*** (.32)
λ			−.46 (.79)
μ_1[b]	2.14*** (.10)	2.88*** (.24)	2.89*** (.24)
μ_2[b]	2.62*** (.11)	3.70*** (.29)	3.70*** (.29)
Significance Level	.000	.000	.000
χ^2	102.09	73.33	73.83
df	6	9	10
Log likelihood function	−454.29	−136.78	−136.53

Note: Time 1, $N = 516$; Time 3, $N = 206$.

[a]Reference category is "only collective social participation."

[b]$\mu_0 = 0$.

*$p < .05$; **$p < .01$; ***$p < .001$.

participation was only directly affected by health status and age. Very old persons and persons with health problems were more likely to decrease their social participation between T1 and T3. The possession of other resources did not affect change in social participation in old age.

The results from the second model may suffer from a selection bias. It is probable that participation in a longitudinal study is partly affected by the same characteristics as social participation itself. In order to take a possible selection between the samples of 516 and 206 into account, we used Heckman's correction procedure (Heckman, 1979). In the first step, a binomial probit model was estimated for the sample at T1 ($N = 516$) with participation in the study at T3 as the dependent variable. The career factor, health, age, and duration of the interviews at T1 were used as predictors. Participation at T3 was indeed more common among healthy, younger persons with higher status. In the next step, the results of the probit analyses were used to create a correction variable (λ) that was added to the model predicting change in social participation (Model 3).

Although there was indeed strong selection between T1 and T3—socially active persons were more likely to stay in the study—the correction for selection did not change our main conclusion. Participation at T1 was still the most important predictor of participation at T3. The effects of both health and age were smaller after correcting for selection bias. They were upwardly biased in Model 2. The effect of health was no longer significant, but of comparable size in Models 2 and 3. We thought it more likely that the effect became insignificant as the result of adding an additional variable to a model that is based on a relatively small number of cases, than that there is really no effect of health on changes in social participation.

Discussion

In the Berlin Aging Study, social participation in old age can be described as accumulation. Individuals who perform more demanding social activities were more likely to also take part in less demanding types. Deviations from the cumulative pattern—for example, persons who were politically active, but did not participate in collective activities—were rare. This finding must not necessarily be seen as evidence against the hypothesis of selection in old age. It could be used to give this hypothesis a more specific content. If selection takes place in old age, it will most likely be a selection of less demanding social activities, whereas participation in more demanding activities is stopped. The cumulative pattern of social participation is maintained even after selection. Future research could focus on a further division of collective social participation in more and less demanding activities. Such a division would enable a more stringent test of the hypothesis of accumulation. Furthermore, it would provide us with a better measurement of the level of social participation in old age.

The cross-sectional and longitudinal analyses of social participation in very old age indicated relative stability of the aggregate patterns of participation over 4 years. At the individual level we found more complex changes between T1 and T3. There was a considerable number of persons who were not active at T1 but who took part in social activities at T3. The latter corresponds to results from other studies (e.g., Glass et al., 1995). An interesting and unexpected finding of this part of the analyses was the reduction of the proportion of persons who did not participate in social activities when we compared the original sample with the longitudinal sample. The main reason for this reduction was undoubtedly the close relationship between complete disengagement from

social life and death. In old and very old age, social dying—described here as the reduction of forms of social participation—can be considered as a prelude to and companion of biological dying.

Using ordinal probit models, it was shown that the bivariate association between gender and the level of social participation disappeared when education and occupational status were taken into account. Men were more likely to be politically active than women because of their larger educational and occupational resources. We did not find a significant effect of employment duration, an indicator of occupational resources, on the level of social participation. One reason may be that the employment duration variable is a too imprecise indicator for capacities that can be used for social participation in old age. On the one hand, individuals could be employed for a long time, but not acquire any useful capacities. On the other hand, individuals could develop such capacities outside their occupational career, for example, doing housework and care giving (e.g., Moen, Robinson, & Fields, 1994).

Amid the somewhat depressing conclusions about social dying, the findings of this part of the analyses gave rise to positive expectations for the future. Educational and occupational resources enable persons to enter old age with a higher level of social participation. Given the changes in the occupational distribution and the revolution in educational participation during the previous century, an increase in social participation in old age can be expected for the future. This increase should be especially large for women.

Finally, the assumption that social resources can help people to stay active even after their health declines, was not supported by the data. In this respect social participation is similar to cognitive capacity: Social resources are correlated to a person's level at entrance in old age but not to the speed of decline (Lindenberger & Reischies, 1999).

The relationship between marital status and social participation is complex and deserves further investigation. A precise analysis of individuals' and couples' life situation is necessary to be able to distinguish between negative and positive impacts of having a partner on social participation. Perhaps this issue is not yet resolved because research on the relationship between marital status and social participation in very old age requires not only detailed information on couples' life situation but also an overrepresentation of women whose partner is still alive.

There are numerous studies about the relationships between various forms of social participation, social support, well-being, life satisfaction, and health of elderly people. Their major theme is that there is no "one way" influence of health on social activities but a complex interdependence. The most robustly aging individuals report more social contacts, better health, and better vision (Garfein & Herzog, 1995). Social networks and social support—closely related to social participation—play a buffering role between social and psychological stress and physical well-being (House, Landis, & Umberson, 1988; Lin & Ensel, 1989). Social participation can constitute a means of coping with health change (Lefrancois et al., 1998) and can have a positive impact on health and longevity (e.g., Moen & Dempster-McClain, 1989; Sugisawa, Liang, & Liu, 1994; Mendes de Leon, Gold, Glass, Kaplan, & George, 2001). More demanding social participation, such as voluntary and productive activities, seems to play a special role for the quality of life in old age. Hunter and Linn (1980–1981) found that elderly volunteers are more satisfied with life, have a stronger will to live, and report fewer somatic or depressive symptoms than those who do not volunteer. Altruistic activities have a stronger positive impact on participants' life satisfaction and well-being than recreational activities (Williams, Haber, Waever, & Freeman, 1998).

A possible explanation for these findings could be that participation in productive activities gives individuals a feeling of being useful for others, of personal fulfillment, and of self-respect (e.g., Monk, 1995; Okun, 1994). Persons participating productively are challenged in their abilities and competencies, and the influence of this challenge is shown to be stimulating even on the cellular level of human organism (e.g., Svanborg, 1985). In line with our results, it would be interesting to investigate whether even more demanding activities (political participation) have stronger positive effects on quality of life. Essential to this research, however, is a longitudinal approach to distinguish between effects of social participation on quality of life, and effects of quality of life on social participation. Besides, research should focus on the differential effects of lifelong differences in the level of social participation and of changes in social participation in old age.

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