Journal of Gerontology: PSYCHOLOGICAL SCIENCES
2004, Vol. 59B, No. 5, P250–P257

The Interpretation of Social Comparison and Its Relation to Life Satisfaction Among Elderly People: Does Frailty Make a Difference?

Nynke Frieswijk,[1] Bram P. Buunk,[1] Nardi Steverink,[2] and Joris P. J. Slaets[2]

[1]Department of Social and Organizational Psychology, University of Groningen, The Netherlands.
[2]Departments of Internal Medicine and Geriatrics, University Hospital Groningen, The Netherlands.

We examined the interpretation of upward and downward social comparison and its effect on life satisfaction in a questionnaire study among 444 community-dwelling elderly persons with different levels of frailty. As we expected, elderly persons with higher levels of frailty were less inclined to contrast and more inclined to identify themselves with a downward comparison target. Furthermore, they were more inclined to contrast themselves with an upward comparison target, but contrary to our expectations, they were also more inclined to identify with this target. Upward identification and downward contrast related positively, whereas upward contrast and downward identification related negatively to life satisfaction. These effects existed independently of the negative effect of frailty on life satisfaction.

"LIFE begins at 40, but so do fallen arches, rheumatism, faulty eyesight, and the tendency to tell a story to the same person three or four times." This quotation from William Feather exemplifies how aging comes with a whole new reality. With age, many changes occur at the physical and the psychosocial level. In general, there is an increase in physical and cognitive limitations, which in turn affects daily activities and social contacts. When elderly people suffer from beginning problems in multiple life domains, the interaction of these problems can cause a gerontological condition called "frailty." This condition denotes a lack of physiological and psychosocial reserves, which makes frail elderly persons more vulnerable to adverse outcomes, including dependence on others, chronic illness, and admission to an institution (see, e.g., Rockwood, Fox, Stolee, Robertson, & Beattie, 1994; Rockwood, Hogan, & MacKnight, 2000). Programs addressing the adverse outcomes of frailty, such as the increased risk of falling (e.g., Reinsch, MacRae, Lachenbruch, & Tobis, 1992) or placement in a nursing home (e.g., Hedrick, Koepsell, & Inui, 1989), have shown that the losses associated with a frail condition are difficult to reverse. The adversity and irreversibility of outcomes associated with a frail condition may interfere with successful aging, that is, aging with the maintenance of well-being (e.g., Steverink, Lindenberg, & Slaets, 2003). However, there is evidence that cognitive processes can protect against the negative effects of age-related loss on well-being (e.g., Brandtstädter, Wentura, & Greve, 1993).

In research into life-span development, social comparison is receiving increasing recognition as an important strategy for adaptation in old age (e.g., Heckhausen, 1999; Heidrich & Ryff, 1993). By comparing themselves with age peers in similar situations, elderly people can make an adjusted assessment that allows them to reinterpret their present lives in a positive manner. In this way, they can preserve their life satisfaction, despite age-related loss (e.g., Baltes & Baltes, 1990). Social comparison has been shown to be more predictive of life satisfaction than factors such as aspiration level or comparison with one's prior situation (Emmons & Diener, 1985). Research into the adaptive consequences of social comparison in old age has mainly focused on downward comparison, that is, comparison with others who are worse off (Heidrich & Ryff, 1993; Rickabaugh & Tomlinson-Keasey, 1997). When a person suffers from a decline in well-being, downward comparison can serve to enhance his or her self-image and to regulate negative emotions as a consequence of threat or loss (Wills, 1981). The self-enhancing function of downward comparison has been well established among a variety of populations experiencing some kind of threat, such as women who suffer from chronic fibromyalgia pain (Affleck, Tennen, Urrows, Higgins, & Abeles, 2000), couples at risk of infertility (Stanton, 1992), African American adults with sickle-cell disease (Wilson, Gil, & Raezer, 1997), and pregnant women at risk of adverse birth outcomes (Dias & Lobel, 1997). These and numerous other studies report that persons experience less negative affect after comparison with others doing worse than after comparison with others doing better (for a review, see Tennen, McKee, & Affleck, 2000). Furthermore, the adaptive consequences of downward comparison have been shown on a variety of measures related to well-being, such as self-esteem (e.g., Dias & Lobel, 1997), depressive affect (e.g., Wilson et al., 1997), and self-rated health (Robinson-Whelen & Kiecolt-Glaser, 1997), indicating the robustness of this effect. However, the adaptive consequences of social comparison are not intrinsic to its direction (Buunk, Collins, Taylor, Van Yperen, & Dakof, 1990). Several studies, for example, among patients with cancer (Van der Zee, Buunk, & Sanderman, 1998) and individuals under the Disablement Insurance Act (Ybema & Buunk, 1995), have reported less negative affect after upward than after downward comparison information. Apparently, both upward and downward comparison can serve an adaptive function.

In their identification-contrast model, Buunk and Ybema (1997) suggested that upward and downward comparison might both be interpreted in a positive and a negative way, depending on whether individuals contrast or identify themselves with the comparison target. Most of the studies of the adaptive consequences of downward comparison are based upon the assumption that individuals contrast their situations with the

situation of the comparison other; that is, they focus on differences between them and the other person (Van der Zee, Buunk, Sanderman, Botke, & Van den Bergh, 2000). When individuals contrast themselves with the comparison target, downward comparison will result in feelings of superiority ("This person is in such a bad situation; I am doing much better"), whereas upward comparison will result in feelings of inferiority ("This person is so fantastic; I could never be the same"). Obviously, under such circumstances, people are more motivated to make downward than upward comparisons. In contrast, when individuals identify with the comparison other, that is, they focus on the similarities between them and the other person, they are more motivated to make upward instead of downward comparisons. Under these circumstances, the target's position on the comparison dimension may influence the person's expectation of a future standing on this dimension (Van der Zee et al., 2000), owing to which upward identification increases the hope of improving ("If this person is doing well, so can I"), and downward identification elicits fear of deteriorating like the comparison target ("If this person is doing poorly, I could end up just the same").

In general, elderly persons are capable of maintaining a positive view of themselves and their lives (Baltes & Baltes, 1990). That is why we expect them to interpret social comparison adaptively, by identifying upward and contrasting downward, and not maladaptively, by contrasting upward and identifying downward. However, it may become more difficult for elderly persons to interpret social comparison information adaptively with higher levels of frailty.

First, frail elderly persons may identify less with an upward target, and they may contrast themselves more with this target. As many of the adverse outcomes of frailty are irreversible, the chances of becoming like the upward comparison other are relatively small. Furthermore, many of these outcomes, such as chronic illness, increased dependence on others, and admission to a nursing home, are associated with a diminished perceived controllability (e.g., Rodin, 1986; White & Janson, 1986), so frail elderly persons may also perceive the chances of becoming like the upward comparison target as relatively small. This is why it seems likely that information about a person doing better will instill feelings of inferiority rather than hope of improvement.

Second, frail elderly persons may contrast themselves less with a downward target and identify more with this target. Because they more or less lack physiological and psychosocial reserves, frail elderly persons are at risk of ending up like a person who is doing worse. This makes it likely that downward comparison will evoke fear of ending up like a person doing worse rather than feelings of superiority. In sum, we expect that elderly persons with higher levels of frailty will identify less with an upward target and will contrast themselves more with this target, whereas they will identify more with a downward target and will contrast themselves less with this target.

However, as shown in a recent study by Frieswijk, Buunk, Steverink, and Slaets (2004), when frail elderly persons do succeed in interpreting social comparison adaptively, this increases their life satisfaction. In that study, we manipulated the kinds of social comparison that elderly persons made to investigate their effects on life satisfaction. Life satisfaction is a concept that is often used to define adjustment in old age (e.g., Hoyt & Creech, 1983; Rudinger & Thomae, 1990). We showed that, with low levels of identification, frail elderly persons experience more life satisfaction after downward comparison, whereas with high levels of identification, they experience more life satisfaction after upward comparison. These effects existed independently of the negative effect that frailty had on life satisfaction. Apparently, it is not only the objective situation but also its subjective cognitive appraisal that determines whether frail elderly persons are able to adjust to their present situation.

In the present study, we extended the research of the previous study by investigating whether frail elderly persons are capable of interpreting social comparisons adaptively. So far, the different strategies of social comparison have not been related to frailty. The adaptive function of these strategies has been studied among cancer patients by Van der Zee and colleagues (2000), who found that the tendency to identify oneself with others doing better and to contrast oneself with others who are doing worse was positively related to the use of confronting coping styles, such as positive reinterpreting of a stressful situation, seeking social support, and active coping, whereas the tendency to contrast oneself with others doing better and to identify oneself with others doing worse was related to the use of avoiding coping styles, such as the focusing on and venting of emotions. Obviously, upward identification and downward contrast offer a more adaptive interpretation of social comparison information than upward contrast and downward identification among cancer patients. When we apply these findings to the life satisfaction of elderly persons, upward identification and downward contrast may facilitate a person's adjustment to old age by changing his or her negative interpretation of his or her present situation to a positive one, but it may also facilitate transition to a more active, problem-focused adjustment to aging. In contrast, upward contrast and downward identification may increase a person's negative emotions by exacerbating his or her negative interpretation of his or her present situation, which, in turn, can interfere with an active adjustment to aging. Because one of the main operational definitions of adjustment to aging is in terms of life satisfaction, we expect that upward identification and downward contrast will be positively related to the life satisfaction of elderly persons, and that upward contrast and downward identification will be negatively related to the life satisfaction of elderly persons. We expect that these effects will exist independently of the negative effect frailty has on life satisfaction.

Methods

Sample and Procedure

In August 2001, we sent a questionnaire to a random sample of 3,000 community-dwelling elderly persons aged 65 years and older. The addresses of these people were randomly drawn from the registers of six municipalities in the north of the Netherlands—namely, Groningen, Delfzijl, Zuidhorn, Leeuwarden, Heerenveen, and Smallingerland—and 500 addresses were selected from each register. The six municipalities consist of smaller and larger villages and cities, and the average income is comparable to the national mean. A comparison on gender between the sample and the Dutch population of persons aged 65 years and older (Statistics Netherlands, 2003) showed that the proportion of males to females in the sample and the population is equal, with 41% being male and 59% being female.

We randomly distributed different parallel versions of the questionnaire among the addressees from the different municipalities, with a random subsample of 1,000 elderly persons receiving the version containing social comparison strategies. A total of 44% of the 1,000 addressees that received the version containing social comparison strategies returned their questionnaires ($n = 444$). The distribution of these respondents over the six municipalities was about the same as the distribution of the original community sample (about 17% from each municipality), as was the proportion of males to females. In some cases of nonresponse, the addressees or family members of the addressees contacted us by phone or letter. This gave us an impression of the reasons why a number of people did not return the questionnaire: death, admission to a nursing home, bad physical condition, cognitive disorders, too busy, not in the mood, and concerns about privacy. Because many people gave the reason of physical constraint, this may have caused an underrepresentation of severely frail respondents in the final sample.

The average age of respondents in this subsample was 75.1 years ($SD = 6.4$); the age of respondents ranged from 65 to 99 years. At the time of completion, 98% of the respondents were living independently, 1% had been admitted to a residential home, and 1% were of unknown residence. Sixty-two percent of the respondents had a partner with whom they shared a house, 2% had a partner with whom they did not share a house, and 36% did not have a partner at the time of completion. Of those without a partner, 83% were widowed.

On a scale from 0 (not frail) to 15 (severely frail), respondents had an average score of 2.68 on the Groningen Frailty Indicator, or GFI ($SD = 2.33$), which means that, overall, the research sample was only slightly frail. Ninety percent of the respondents did not suffer from any physical problems; the remaining respondents suffered from problems whose severity ranged from not being able to do the shopping single handedly (10% of the research sample) to not being able to dress and undress single handedly (1%). Similarly, most respondents indicated that they did not suffer from any psychosocial problems. Of those who did suffer from problems in the psychosocial domain, most indicated that they sometimes missed people around them (12% of the research sample), or that they sometimes experienced an emptiness around them (10%). Some respondents also indicated suffering from feelings of depression (6% of the research sample) and anxiety (6%).

Instruments

Frailty.—To determine the levels of frailty of the respondents, we used the GFI (Schuurmans, Steverink, Lindenberg, Frieswijk, & Slaets, in press; Steverink, Slaets, Schuurmans, & Van Lis, 2001). This is a simple questionnaire designed to screen elderly persons for beginning physical, cognitive, and psychosocial problems. An example of a physical item is "Are you able to do your shopping single handedly without any help?" An example of a psychosocial item is "Do you sometimes miss people around you?" The GFI consists of 15 items, which can be answered with "yes" or "no." In addition, the psychosocial items and an item on memory complaints can be answered with "sometimes." We assigned answers indicating a high level of frailty 1 point, and we assigned answers indicating a low level of frailty 0 points. We assigned the answer "sometimes" 1 point for the psychosocial items and 0 points for the item on memory complaints. We summed these points, which resulted in a range from 0 (not frail) to 15 (severely frail). The GFI has shown to be an internally consistent scale with positive indications of construct and clinical validity. The clinical assessment of frailty level by a panel of geriatric experts corresponded with scale scores on the GFI. These experts considered a GFI score of 5 or higher as moderately to severely frail (Steverink et al., 2001).

Strategies of social comparison.—To measure the different social comparison strategies, we used scales based on those used by Van der Zee and colleagues (2000). We measured each social comparison strategy by using a separate scale, consisting of two items. An example of an item for upward identification is "When I see others who are better off than I am, I have good hope that my situation will improve." An example of an item for downward contrast is "When I meet others who are worse off than I am, I realize how well I am doing." An example of an item for upward contrast is "When I see others who are better off than I am, it is threatening to notice that I am not doing so well." An example of an item for downward identification is "When I see others who are worse off than I am, I experience fear that I will decline." Answers could be given on a 5-point scale, ranging from not at all (1) to very strongly (5). In a study among cancer patients (Van der Zee et al., 2000; Van der Zee, Buunk, Sanderman, Botke, & Van den Bergh, 1999), the internal consistency and stability of these scales was shown to be high. Higher order analysis showed two basic factors, with the factor labelled "positive interpretation" encompassing upward identification and downward contrast and the factor labelled "negative interpretation" encompassing upward contrast and downward identification. Furthermore, upward identification and downward contrast were associated with adaptive coping styles, such as reinterpretation, seeking social support, and active coping.

Life satisfaction.—We used a Dutch version of the Satisfaction With Life Scale (Arrindell, Heesink, & Feij, 1999; Diener, Emmons, Larsen, & Griffin, 1985) to measure life satisfaction. This is a brief scale, consisting of five items, which approaches life satisfaction as a cognitive-judgmental process. An example of an item is "In most ways, my life is close to my ideal." Answers could be given on a 5-point scale, ranging from strongly disagree (1) to strongly agree (5).

Results

Descriptives

Table 1 contains the descriptive statistics (means, standard deviations, and range) for frailty, the strategies of social comparison, and life satisfaction. Internal consistencies (alpha coefficients) are also reported. Table 2 contains the correlations between the different measures.

Testing the Hypotheses

First, we used a mixed-factor design with repeated measures to test our hypotheses that elderly persons with higher levels of frailty identify less with an upward target and contrast themselves more with this target whereas they contrast

Table 1. Means, Standard Deviations, Ranges, and Reliabilities (Alpha) of Main Variables

Variable	Items	*M*	*SD*	Range	α
Frailty	15	2.68	2.33	0–10	.70
Upward identification	2	2.34	.98	1–5	.78
Upward contrast	2	1.84	.83	1–4.5	.69
Downward identification	2	2.35	.90	1–5	.75
Downward contrast	2	3.62	.96	1–5	.77
Life satisfaction	5	3.83	.72	1.2–5	.84

themselves less with a downward target and identify more with this target. We considered the measures of different social comparison strategies as repeated measures of two within-subjects factors, namely direction and interpretation of social comparison. Within the factor of direction, we contrasted measures containing upward comparison against those containing downward comparison. Within the factor of interpretation, we contrasted measures containing identification against those containing contrast with the comparison target. Furthermore, we considered the measure of frailty as a between-subjects factor with three separate categories: not frail, consisting of respondents with a GFI score of 0 and 1; slightly frail, consisting of respondents with a GFI score of 2–4; and moderately to severely frail, consisting of respondents with a GFI score of 5 and higher. (This regrouping of the respondents did not change the results of our study. It did prevent marginal means in the mixed-factor design from representing the scores of only one or two elderly persons.) The number and percentage of respondents and the mean GFI score of respondents in each category of frailty are described in Table 3.

To verify whether the variance in groups of elderly persons with different levels of frailty was equal, we performed a Levene's test of equality of error variances on the four different strategies of social comparison. This test showed that whereas the error variance of the positive interpretations of social comparison, that is, upward identification ($F = 1.81$, $p = ns$) and downward contrast ($F = 1.35$, $p = ns$), was equal across the different categories of frailty, the error variance of the negative interpretations of social comparison, that is, upward contrast ($F = 5.92$, $p < .01$) and downward identification ($F = 5.02$, $p < .01$), differed significantly. That is why the results with regard to these latter social comparison strategies have to be interpreted cautiously across the different categories of frailty.

The mixed-factor design with repeated measures showed a main effect of direction of social comparison, $F(1, 394) = 337.09$, $p < .001$, $\eta^2 = .46$, with respondents being more oriented toward downward comparison ($M = 3.00$) than toward upward comparison ($M = 2.12$). We also found a main effect of the way people interpreted social comparison, $F(1, 394) = 135.64$, $p < .001$, $\eta^2 = .26$, with contrast ($M = 2.74$) occurring more often than identification with the comparison target ($M = 2.39$).

Table 2. Correlations Between Frailty, the Strategies of Social Comparison, and Life Satisfaction

Variables	1	2	3	4	5	6
1. Frailty total score	—	.11*	.40**	.28**	−.12*	−.46**
Physical subscale	.73**	.07	.35**	.17*	−.13*	−.32**
Psychosocial subscale	.85**	.09	.29**	.26**	−.09	−.42**
2. Upward identification		—	.46**	.11*	.16**	.05
3. Upward contrast			—	.39**	−.05	−.31**
4. Downward identification				—	.20**	−.25**
5. Downward contrast					—	.22**
6. Life satisfaction						—

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

Table 3. Distribution of GFI Scores and Respondents in Different Categories of Frailty

	GFI Scores		Respondents	
Category	Range	*M*	Frequency	%
Not frail	0–1	0.82	153	34.5
Slightly frail	2–4	3.40	159	35.8
Moderately to severely frail	≥5	6.29	104	23.4
Missing			28	6.3
Total			444	100

Note: GFI = Groningen Frailty Indicator.

Furthermore, there was a significant interaction between direction of social comparison on the one hand, and interpretation of social comparison on the other; $F(1, 394) = 363.69$, $p < .001$, $\eta^2 = .48$. With respect to upward comparison, respondents reported more identification ($M = 2.35$) than contrast ($M = 1.89$). With respect to downward comparison, respondents reported more contrast ($M = 3.59$) than identification ($M = 2.41$). There was also a significant two-way interaction between frailty and direction of social comparison, $F(2, 394) = 3.54$, $p < .05$, and between frailty and interpretation of social comparison, $F(2, 394) = 3.18$, $p < .05$. However, for both interaction effects $\eta^2 < .02$, indicating a low effect size.

Finally, there was a significant three-way interaction between frailty, direction of social comparison, and interpretation of social comparison, $F(2, 394) = 23.36$, $p < .001$, $\eta^2 = .11$. The extent to which elderly persons were oriented toward the different social comparison strategies is shown in Figure 1 for each level of frailty. To verify whether these means indicated significant trends, we looked at the Pearson's correlation between frailty on the one hand and the different social comparison strategies on the other, as reported in Table 2. As we expected, higher levels of frailty were associated with higher levels of upward contrast ($r = .40$, $p < .001$) and downward identification ($r = .28$, $p < .001$), while they were associated with lower levels of downward contrast ($r = -.12$, $p < .05$). Contrary to our expectations, however, higher levels of frailty were also associated with higher levels of upward identification ($r = .11$, $p < .05$).

Second, we did a hierarchical regression analysis to test our hypothesis that the social comparison strategies affect life satisfaction independently of the level of frailty. In the first step, we entered the standardized scores on the social comparison strategies into the regression quotation; in the second step, we entered the standardized scores on frailty; in the third step, we entered the interaction between one of the social comparison strategies and frailty.

As indicated in Table 4, 19% of variance in life satisfaction was explained by the main effects of the social comparison strategies, $\Delta F (4, 362) = 21.85$, $p < .001$. All four main effects were significant. As we expected, downward contrast ($B = .15$, $p < .001$) was positively related to life satisfaction, whereas

upward contrast ($B = -.22$, $p < .001$) and downward identification ($B = -.14$, $p < .01$) were negatively related to life satisfaction. We also found the expected positive effect of upward identification on life satisfaction ($B = .13$, $p < .01$), whereas the correlation matrix described in Table 2 showed no significant relationship between these variables. Further analyses showed that when the correlation between upward identification and life satisfaction was corrected for upward contrast, their relationship was significant ($r = .23$, $p < .001$). Apparently, upward contrast suppressed the positive relationship between upward identification and life satisfaction.

To verify whether the effects of the social comparison strategies on life satisfaction existed independently of the level of frailty, we entered the latter into the equation. This yielded a significant increase of 10% in explained variance in life satisfaction, $\Delta F\ (1, 361) = 48.59$, $p < .001$. As shown in Table 4, the main effects of the social comparison strategies remained significant after frailty was entered into the regression equation. In line with our first expectation, the social comparison strategies explained a significant amount of variance in life satisfaction, independently of the level of frailty. We also found a main effect of frailty ($B = -.25$, $p < .001$), with higher levels of frailty resulting in lower life satisfaction.

To explore whether the social comparison strategies influenced the relationship between frailty and life satisfaction, we separately entered each social comparison strategy in interaction with frailty. Entering the two-way interaction terms in separate equations did not yield a significant increase in explained variance in life satisfaction for any of the social comparison strategies, $\Delta F\ (4, 357) = 1.48$ (Upward identification $\times$ Frailty); 1.33 (Upward contrast $\times$ Frailty); .11 (Downward identification $\times$ Frailty); 2.81 (Downward contrast $\times$ Frailty), $p = ns$. As shown in Table 4, none of the interactions between the social comparison strategies and frailty were significant.

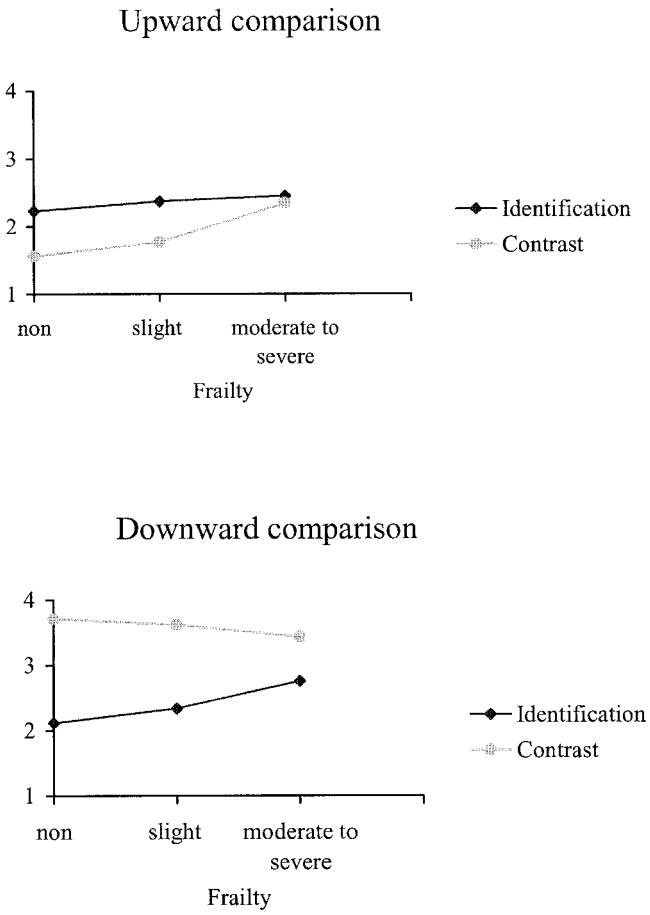

Figure 1. Marginal means of the Frailty $\times$ Direction of social comparison $\times$ Interpretation of social comparison interaction.

Discussion

In the present study, we explored different social comparison strategies among elderly persons with varying levels of frailty. First, we expected that, as a consequence of the losses associated with frailty, elderly persons would be less capable of interpreting social comparison adaptively with higher levels of frailty. Indeed, the results show that elderly persons with higher levels of frailty were more oriented toward upward contrast and downward identification, and less toward downward contrast. However, as the error variance of upward contrast and downward identification differed significantly between the different categories of frailty, the findings with regard to the negative interpretations of social comparison have to be interpreted cautiously.

Contrary to our expectations, frailer elderly persons were also more oriented toward upward identification than less frail elderly persons. Apparently, when frailer elderly people are confronted with a person doing better, they are more inclined to identify with this person than less frail elderly people. We can explain this finding by considering two conditions distinguished by Wills (1991): the availability of social comparison and the propensity for social comparison. Frailer elderly persons may identify more with an upward target than less frail elderly persons because the availability of upward comparisons increases with higher levels of frailty. When elderly persons have suffered from loss, upward comparison targets may become more salient. Furthermore, frail elderly persons may identify more with an upward target because the propensity for this kind of social comparison increases with higher levels of frailty. As Taylor and Lobel (1989) suggested, upward comparison may be seen as "problem-solving efforts, by providing a person with information valuable for potential survival and successful coping, and as a method for meeting emotional needs, by providing hope, motivation and inspiration" (p. 334). Apparently, the motivation to fulfill the emotional and problem-solving needs created by a frail condition is more predictive of the use of upward identification than are an individual's actual chances of improving like the upward target.

Second, we expected that social comparison strategies would be related to life satisfaction and that these effects would exist independently of the negative effect of frailty on life satisfaction. As we expected, upward identification and downward contrast were positively related to life satisfaction, whereas upward contrast and downward identification were negatively related to life satisfaction. These effects remained significant, even when we considered the level of frailty. Obviously, social comparison strategies are an important determinant of life satisfaction in old age: Even when elderly

Table 4. Hierarchical Regression Analysis of Life Satisfaction

	Model 1		Model 2		Model 3				
Variable	ΔF	B	ΔF	B	ΔF	ΔF	ΔF	ΔF	B
1. Upward identification	21.85	.13**		.11**					
Upward contrast		−.22**		−.14**					
Downward identification		−.14**		−.09*					
Downward contrast		.15**		.12**					
2. Frailty			48.59	−.25**					
3. Upward identification × Frailty					1.48				.04
Upward contrast × Frailty						1.33			−.04
Downward identification × Frailty							.11		−.01
Downward contrast × Frailty								2.81	.05
R^2	.19		.29		.29	.29	.29	.3	
F	21.85		29.5		24.86	24.89	24.54	25.17	

*$p < .05$. **$p < .01$.

people suffer from substantial physical and psychosocial loss, the adaptive interpretation of social comparison information can still help them to maintain their satisfaction with life.

Despite the potential contribution of the present study to our understanding of life satisfaction among frail elderly persons, some limitations must be noted. First, because our sample contained only community-dwelling elderly persons, we excluded the frailest elderly persons: those residing in nursing homes. The physical nature of many reasons given for nonresponse may have added to this underrepresentation of severely frail respondents in our sample. Nevertheless, the range of frailty in the sample was satisfactory for the purpose of the present study. As the expert panel rated persons with a frailty score of 5 and higher as moderately to severely frail, this group of respondents could be compared with those with lower levels of frailty in order to determine the orientation toward different social comparison strategies among elderly persons with increasing levels of frailty.

Second, there may have been some overlap between the operationalization of frailty and the different social comparison strategies on the one hand, and life satisfaction on the other. Both the measures of frailty and of the different social comparison strategies made reference to positive and negative emotions in their item wording: The psychosocial subscale of the GFI contains questions about feelings of loneliness, depression, and anxiety; some items of the social comparison strategies measurement incorporated the emotional response to a specific interpretation of social comparison in their phrasing. However, life satisfaction refers to a more cognitive-judgmental process, and it is a domain of well-being relatively distinct from positive and negative emotions (Diener, Suh, Lucas, & Smith, 1999). Indeed, we found the measures of frailty and social comparison strategies to relate significantly to life satisfaction, as expected, but these relationships were not as strong as to indicate a substantial conceptual overlap.

Third, the answering categories of the social comparison strategies may have allowed for different interpretations. The anchors of the items, that is, not at all to strongly, were intended to denote the extent to which particular outcomes of upward or downward comparison occurred, but there is some ambiguity on how to interpret the scores. For example, a score of not at all to the question "When I see others who are worse off than I am, I experience fear that I will decline" may denote that a person does not experience fear of decline after seeing a downward comparison target, but may also denote that a person never engages in downward comparison. Nevertheless, the strong two-way interaction effect that was found between the direction and the interpretation of social comparison suggests that most respondents interpreted the answering categories as intended.

Last, the cross-sectional nature of our study interfered with the drawing of conclusions regarding the direction of causality. For example, it cannot be definitely established whether frailty makes elderly persons less capable of interpreting social comparison information adaptively or whether the incapability for interpreting social comparison information adaptively increases the risk of becoming frail. Likewise, the results of this study do not allow us to provide definite answers to the question of whether social comparison strategies influence life satisfaction or whether life satisfaction influences the type of social comparison strategies elderly persons use. It is possible that elderly people who feel more satisfied with their lives are more capable of identifying themselves with people doing better and of contrasting their situation with those of people doing worse.

Despite these limitations, the present study may extend the current literature on social comparison in two different ways. First, it may add to our understanding of the decline in well-being with higher levels of frailty; second, it may provide suggestions on how to extend traditional interventions. Research among representative samples of people at all ages has shown that, in general, elderly persons do not differ from younger or middle-aged adults on most measures of subjective well-being (Diener & Suh, 1998; Inglehart, 1990). Such findings suggest that, to a certain extent, elderly people are quite able to adapt to the changes associated with old age (Diener et al., 1999). The self-enhancing function of downward comparison has been well established as an important cognitive process in adaptation to health-related threats and losses (for a review, see Tennen et al., 2000). By comparing themselves with someone doing worse, people can make an adjusted assessment that allows them to reinterpret their present lives in a positive manner: "Even though I can no longer do my own shopping, I'm still fortunate compared with those who cannot leave their houses at all." The present study shows that frail

elderly persons are, in general, less oriented toward the self-enhancing function of downward comparison; that is, they are less inclined to contrast and more inclined to identify downward. As they lack the cognitive buffering of self-enhancing downward comparisons, elderly persons may become less able to adjust to age-related loss with higher levels of frailty, and, consequently, this may lower their subjective well-being.

Although frail elderly persons were less oriented toward downward contrast, our results show that when they do interpret social comparisons positively, this can positively influence their life satisfaction. Not only can upward identification and downward contrast enable a frail elderly person to interpret his or her situation more positively, but they may also facilitate transition to a more active, problem-focused adjustment to aging (Van der Zee et al., 2000). That is why interventions aimed at reversing the outcomes of frailty might consider addressing the ways in which frail elderly persons interpret social comparison information. This would certainly be useful in settings in which people receive an intervention in the presence of others, for example, during a course or training. When similar others are present, social comparison becomes salient. By encouraging a positive interpretation of social comparison, practitioners can improve the success of interventions aimed at a more active adjustment to frailty.

Acknowledgments

This research was supported in part by grants from ZonMw (The Netherlands Organization for Health Research and Development).

Address correspondence to Nynke Frieswijk, Department of Social and Organizational Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands. E-mail: N.Frieswijk@ppsw.rug.nl

References

Affleck, G., Tennen, H., Urrows, S., Higgins, P., & Abeles, M. (2000). Downward comparisons in daily life with chronic pain: Dynamic relations with pain intensity and mood. *Journal of Social and Clinical Psychology, 19*, 499–518.

Arrindell, W. A., Heesink, J., & Feij, J. A. (1999). The Satisfaction With Life Scale (SWLS): Appraisal with 1700 healthy young adults in The Netherlands. *Personality and Individual Differences, 26*, 815–826.

Baltes, P. B., & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). New York: Cambridge University Press.

Brandtstädter, J., Wentura, D., & Greve, W. (1993). Adaptive resources of the aging self: Outlines of an emergent perspective. *International Journal of Behavioral Development, 16*, 323–349.

Buunk, B. P., Collins, R. L., Taylor, S. E., Van Yperen, N. W., & Dakof, G. A. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology, 59*, 1238–1249.

Buunk, B. P., & Ybema, J. F. (1997). Social comparisons and occupational stress: The identification-contrast model. In B. P. Buunk & F. X. Gibbons (Eds.), *Health, coping and well-being: Perspectives from social comparison theory* (pp. 359–388). Mahwah, NJ: Erlbaum.

Dias, L., & Lobel, M. (1997). Social comparison in medically high-risk pregnant women. *Journal of Applied Social Psychology, 27*, 1629–1649.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*, 71–75.

Diener, E., & Suh, E. M. (1998). Age and subjective well-being: An international analysis. *Annual Review of Gerontology and Geriatrics, 17*, 304–324.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*, 276–302.

Emmons, R. A., & Diener, E. (1985). Factors predicting satisfaction judgments: A comparative examination. *Social Indicators Research, 16*, 157–167.

Frieswijk, N., Buunk, B. P., Steverink, N., & Slaets, J. P. J. (2004). The effect of social comparison information on the life satisfaction of frail elderly persons. *Psychology and Aging, 19*, 183–190.

Heckhausen, J. (1999). Social comparisons as prototypical strategies in developmental regulation. In J. Heckhausen (Ed.), *Developmental regulation in adulthood: Age-normative and sociostructural constraints as adaptive challenges* (pp. 157–190). Cambridge, England: Cambridge University Press.

Hedrick, S. C., Koepsell, T. D., & Inui, T. (1989). Meta-analysis of home-care effects on mortality and nursing-home placement. *Medical Care, 27*, 1015–1026.

Heidrich, S. M., & Ryff, C. D. (1993). The role of social comparisons processes in the psychological adaptation of elderly adults. *Journal of Gerontology: Psychological Sciences, 48*, P127–P136.

Hoyt, D. R., & Creech, J. C. (1983). The life satisfaction index: A methodological and theoretical critique. *Gerontology, 38*, 111–116.

Inglehart, R. (1990). *Cultural Shift in advanced industrial society*. Princeton, NJ: Princeton University Press.

Reinsch, S., MacRae, P., Lachenbruch, P. A., & Tobis, J. S. (1992). Attempts to prevent falls and injury: A prospective community study. *The Gerontologist, 32*, 450–456.

Rickabaugh, C. A., & Tomlinson-Keasey, C. (1997). Social and temporal comparisons in adjustment to aging. *Basic and Applied Social Psychology, 19*, 307–328.

Robinson-Whelen, S., & Kiecolt-Glaser, J. (1997). The importance of social versus temporal comparison appraisals among older adults. *Journal of Applied Social Psychology, 27*, 959–966.

Rockwood, K., Fox, R. A., Stolee, P., Robertson, D., & Beattie, B. L. (1994). Frailty in elderly people: An evolving concept. *Canadian Medical Association Journal, 150*, 489–495.

Rockwood, K., Hogan, D. B., & MacKnight, C. (2000). Conceptualisation and measurement of frailty in elderly people. *Drugs & Aging, 17*, 295–302.

Rodin, J. (1986). Health, control, and aging. In M. M. Baltes & P. B. Baltes (Eds.), *The psychology of control and aging* (pp. 139–165). Hillsdale, NJ: Erlbaum.

Rudinger, G., & Thomae, H. (1990). The Bonn longitudinal study of aging: Coping, life adjustment, and life satisfaction. In P. B. Baltes & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 265–292). New York: Cambridge University Press.

Schuurmans, H., Steverink, N., Lindenberg, S. M., Frieswijk, N., & Slaets, J. P. J. (in press). Old or frail: What tells us more? *Journal of Gerontology: Medical Sciences*.

Stanton, A. L. (1992). Downward comparison in infertile couples. *Basic and Applied Social Psychology, 13*, 389–403.

Statistics Netherlands. (2003). *Statistical yearbook 2003 of the Netherlands*. Voorburg: CBS.

Steverink, N., Lindenberg, S., & Slaets, J. P. J. (2003). *How to understand and improve successful self-management of aging*. Manuscript submitted for publication.

Steverink, N., Slaets, J. P. J., Schuurmans, H., & Van Lis, M. (2001). Measuring frailty: Developing and testing the GFI (Groningen Frailty Indicator). *The Gerontologist, 41* (Special Issue 1), 236.

Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review, 96*, 569–575.

Tennen, H., McKee, T. E., & Affleck, G. (2000). Social comparison processes in health and illness. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 443–483). New York: Kluwer Academic/Plenum.

Van der Zee, K. I., Buunk, B. P., & Sanderman, R. (1998). Neuroticism and reactions to social comparison information among cancer patients. *Journal of Personality, 66*, 175–194.

Van der Zee, K. I., Buunk, B. P., Sanderman, R., Botke, G., & Van den Bergh, F. (1999). The big five and identification-contrast processes in social comparison in adjustment to cancer treatment. *European Journal of Personality, 13*, 307–326.

Van der Zee, K. I., Buunk, B. P., Sanderman, R., Botke, G., & Van den

Bergh, F. (2000). Social comparison and coping with cancer treatment. *Personality and Individual Differences, 28*, 17–34.
White, C. B., & Janson, P. (1986). Helplessness in institutional settings: Adaptation or iatrogenic disease? In M. M. Baltes & P. B. Baltes (Eds.), *The psychology of control and aging* (pp. 297–313). Hillsdale, NJ: Erlbaum.
Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90*, 245–271.
Wills, T. A. (1991). Similarity and self-esteem in downward comparison. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 51–78). Hillsdale, NJ: Erlbaum.
Wilson, J. J., Gil, K. M., & Raezer, L. (1997). Self-evaluation, coping, and depressive affect in African American adults with sickle-cell disease. *Cognitive Therapy and Research, 21*, 443–457.
Ybema, J. F., & Buunk, B. P. (1995). Affective responses to social comparison: A study among disabled individuals. *British Journal of Social Psychology, 34*, 279–292.

Received June 13, 2003
Accepted March 15, 2004
Decision Editor: Margie E. Lachman, PhD