

Burnout, Uncertainty, and the Desire for Social Comparison Among Nurses

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A study was conducted among 295 nurses to examine the interest in social comparison information, that is, the desire to learn more about the feelings and responses of others facing a similar situation. Occupational burnout, in particular emotional exhaustion, reduced personal accomplishment and uncertainty, had independent relationships with the interest in social comparison information. Comparison preferences were strongly upward, there was in general a stronger preference for information about others who were better off than for affiliation with such others. There was also a stronger preference for comparison with more experienced than with more competent others. However, better-off others were avoided relatively more by those high in burnout, especially by those high in reduced personal accomplishment. The results are discussed in the context of social comparison as a way of coping with stress, and self-improvement and self-protection as motives for social comparison.

The work situation can be the source of a variety of stressors, for example, task overload, lack of control, role ambiguity, uncertainty about the future, and interpersonal conflicts (Cooper & Payne, 1988; Karasek & Theorell, 1990), that may lead to a variety of strains, including burnout, depression, psychosomatic complaints, and anxiety (Fletcher, 1991; Warr, 1987). Over the past decade, researchers have increasingly focused upon the various cognitive and behavioral ways in which individuals may cope with such stressors and strains at work (Edwards, 1988; Leiter, 1991). Recently, a number of theorists have suggested that engaging in social comparisons may be a major aspect of coping efforts (Taylor, Buunk, & Aspinwall, 1990; Wills, 1991), but there is as yet little evidence on the role of social comparisons in coping with stress at work. The present research examined this issue in a sample of nurses by relating various stressors and occupational burnout to social comparison preferences.

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1701

The focus of the study is on the desire to obtain social comparison information. This variable has been examined in a number of laboratory experiments (Brickman & Bulman, 1977; Flett, Vredenburg, Pliner, & Krames, 1987), and in various survey studies (Buunk, in press; DeVellis et al., 1990). However, it must be noted that the desire for social comparison information is not the same concept as the one that has been examined in a number of other studies on social comparison under stress. In these studies, individuals were asked to indicate how they felt they were doing in comparison to others (Affleck & Tennen, 1991). This type of comparison can even consist of mental construction of others and does not necessarily imply that one wants more information about those with whom one is comparing oneself (Taylor et al., 1990; Wood, Taylor, & Lichtman, 1985). In contrast, in the present study we are primarily interested in the factors that enhance interest in social comparison information, specifically, the relationship between stress and the desire to learn more about the feelings and responses of others facing a similar situation, and whether such a desire is more upward- or downward-oriented under stress.

Occupational Burnout, Uncertainty, and the Desire for Social Comparison

Social comparison theory has a long history in social psychology (Festinger, 1954). Schachter (1959), who was the first to apply this theory to stressful situations, showed that negative emotions such as anxiety fostered a need for affiliation, and argued that the wish to evaluate one's responses by comparing these with others was an important motive behind this affiliative need (Cottrell & Epley, 1977; Taylor et al., 1990). The present study extends this work to job stress, and examines whether in this context strong negative emotions will be accompanied by an interest in social comparison information, including affiliation. It is therefore predicted that this interest will be particularly related to *emotional exhaustion* (i.e., the depletion or draining of emotional resources) that has been shown to be the major aspect of occupational burnout among human service professionals, including nurses. Shirom (1989), for instance, considers emotional exhaustion to be the core symptom of burnout. Maslach (1993) and her colleagues have developed and tested a conception of burnout consisting of two additional aspects: *depersonalization* (a negative, callous, and cynical attitude towards the recipients of one's care) and *reduced personal accomplishment* (the tendency to evaluate oneself negatively with regard to one's accomplishments at work). Recently, in their burnout validity study, Schaufeli and Van Dierendonck (1993b) found strong indications for a two-dimensional structure of burnout with exhaustion as its core element that is accompanied by two kinds of negative attitudes: towards one's clients (*depersonalization*) and towards oneself (*reduced personal accomplishment*).

Because these negative attitudes can be differentiated from negative emotions, we expect that these will not be related to the need for social comparison.

But negative emotions are not the only aspect of stress related to the desire for social comparisons. Beginning with Festinger's seminal social comparison theory (1954), it has been assumed that the need for social comparison is especially aroused when individuals are faced with unknown situations and want to assess the appropriateness of their own reactions. A number of studies in the Schachter (1959) paradigm have substantiated this idea by showing that the interest in social comparison increases when individuals feel *uncertain* about how to feel and react, for instance, when uncertainty was manipulated by false meter feedback (Gerard, 1963), and when the source of one's arousal was unknown (Mills & Mintz, 1972). It must be noted that the concept of uncertainty employed here implies not so much ambiguity about the environment, but rather a lack of clarity about what to feel and think, or how to act (Wheeler, 1974).

Remarkably, while ambiguity and uncertainty are supposed to be characteristic of stress (Lazarus & Folkman, 1984), there was until recently little evidence that in real life settings uncertainty fosters the need for social comparison. In a study by Buunk, VanYperen, Taylor, and Collins (1991) among married individuals, those who felt uncertain about what was happening in their marriage had a stronger desire to talk with others about their marriage. In a study among disabled individuals, uncertainty was also related to an interest in social comparison information (Buunk, in press). The nursing profession seems a particularly relevant setting for examining uncertainty and social comparison because uncertainty seems rather common in this profession. Although the role of the nurse may seem quite clear, there may be considerable uncertainty about how to carry out this role (McGrath, Reid, & Boor, 1989). For example, nurses may wonder if they are too involved with patients or not involved enough, and they may feel uncertain about how to deal with various problems of patients and their families. Cherniss (1980) considers "doubts about competence" (pp. 206-212) to be a major source of stress that can lead to burnout in human services professionals, particularly in the early stages of their careers. In the same vein, Gray-Toft and Anderson (1981) found that "inadequate preparation" and "uncertainty concerning treatment" were among the most severe stressors in nursing. On the basis of social comparison theory, it is predicted that uncertainty is related to an interest in social comparison information, independent of emotional exhaustion.

Direction of Social Comparison Under Stress

The next issue in the present research concerns the direction of social

comparison: Do individuals want to learn more about others worse off or about others better off? Two relevant dimensions, experience and competence, are distinguished here. For each dimension, individuals are asked for their preferences in terms of two comparison modes: affiliation with others and information about others. For exploratory reasons it is examined if the comparison dimensions and comparison modes differ in the degree in which they are directed upward. However, the major issue concerns the direction of comparison as related to stress.

While there is considerable evidence that individuals under stress tend to focus upon others who are worse off, and tend to emphasize that they themselves are better off (Affleck & Tennen, 1991), there is a controversy about whether individuals under stress also prefer information about and affiliation with such others (Taylor & Lobel, 1989). In an innovative paper, Brickman and Bulman (1977) suggested that comparisons with inferior others may have greater hedonic relevance, but may be less informative and adaptive than upward comparisons. Depending on the emphasis given to hedonic relevance or adaptive value, theorists have come to different hypotheses on the direction of social comparisons under stress. On the one hand, various authors such as Hakmiller (1966) and Wills (1981) have emphasized that under stress downward comparisons will be preferred because of their hedonic value (Gibbons & Gerrard, 1991; Pyszczynski, Greenberg, & LaPrelle, 1985). For example, DeVellis et al. (1990) found that arthritis patients more often preferred to read about another patient who was worse off than they were, supposedly because this would make them feel better. Taylor and Lobel (1989), however, focused upon the adaptive value of upward comparisons, arguing that individuals under stress are faced with the need to obtain relevant problem-solving information, that would be best served by seeking information about and contact with better off others. Evidence from studies among cancer patients (Molleman, Pruyn, & Van Knippenberg, 1986) and individuals with marital problems (Buunk et al., 1991) supports this hypothesis by showing that the desire for upward affiliation is more marked among individuals under stress.

On the basis of the foregoing discussion, two competing hypotheses can be formulated. On the one hand, the *self-improvement* hypothesis predicts that those under more stress would feel a stronger need to learn from others, and would therefore have a relatively stronger interest in information about and contact with others better off, despite the fact that such comparisons might be painful. On the other hand, the *self-protection* hypothesis predicts that although upward comparisons may be relatively more useful, for those under stress a preference for upward comparisons would be tempered by the fact that confrontation with others doing better would be more painful for such

individuals. Thus, downward comparisons would be preferred, that is, contact with and information about worse-off others. By including individuals experiencing various degrees of stress, the present study tests these two competing hypotheses.

The Role of Self-Esteem

The last issue explored concerns the role of *self-esteem*, a variable that appears to be crucial with respect to uncertainty (Gruder, 1977), the development of burnout (Golembiewski & Kim, 1989), and social comparison processes (Gibbons & Boney-McCoy, 1991; Wills, 1981). There is some evidence that those with low self-esteem more often avoid social comparisons, and especially upward comparisons (Friend & Gilbert, 1973; Wilson & Benner, 1971). It is therefore predicted that to protect their vulnerable self-image, those low in self-esteem would be relatively less inclined to seek comparative information, and particularly to avoid upward comparisons. In contrast, high self-esteem individuals would feel less threatened by information about others better off, and would more likely use such information for problem-oriented coping when under stress (cf. Aspinwall & Taylor, 1993). Furthermore, a relationship between a variable reflecting one's subjective state of mind (such as uncertainty and emotional exhaustion) and desire for social comparison might be spurious due to the fact that both are related to self-esteem. Therefore, controlling for self-esteem when examining the association between situational variables and comparison preferences would seem important.

To summarize, the purpose of the present study is to determine which aspects of occupational stress foster the desire to obtain social comparison information. The main questions examined are whether emotional exhaustion is more strongly related to the desire for social comparison than other aspects of burnout (i.e., depersonalization and reduced personal accomplishment), and if uncertainty has an additional and independent effect upon this desire. In addition, the direction of social comparison preferences is assessed, and differences between comparison dimensions (experience and competence) and comparison modes (affiliation and information seeking) are investigated for exploratory reasons. More central to the present research, two competing hypotheses on the direction of social comparison under stress are examined: Interest in social comparison will be more upward oriented under stress (*self-improvement* hypothesis), or more downward oriented under stress (*self-protection* hypothesis). The last issue investigated is whether the desire for social comparison was stronger and more upward directed among those with high self-esteem than among those with low self-esteem.

Method

Sample and Procedure

The subjects in this study were Dutch registered nurses from various health care institutions who were enrolled in an additional part-time training program for head-nurses. A questionnaire was filled out by 295 nurses, mostly in a classroom situation. Virtually all nurses who were asked to participate, complied to this request. The sample included members of different nursing disciplines and work settings: general nurses (37%), psychiatric nurses (13%), community nurses (9%), nurses working with the mentally retarded (19%), and nurses working in nursing homes or hospices (16%). The remaining 7% were employed in other health care settings. A majority of 75% was employed full-time. A slight majority of the nurses was female (58%). Their mean age was 31.13 years ($SD = 4.82$) and they had considerable work experience in nursing ($M = 10.36$ years, $SD = 5.17$). Compared to a normative sample of 2,449 nurses from various fields (Schaufeli & Van Dierendonck, 1993a), the present sample experiences similar levels of emotional exhaustion, $F(1, 2742) = .12, ns$. However, levels of depersonalisation and reduced personal accomplishment are significantly lower in the present sample, $F(1, 2742) = 5.39, p < .05$, and $F(1, 2742) = 11.18, p < .001$, respectively. Obviously, nurses who aspire career advancement, as the nurses in the present sample who are enrolled in a head-nurse training program, experience similar symptoms of exhaustion but fewer negative attitudes than other nurses.

Measures

Burnout. Burnout was measured with the well-validated 22-item Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986). According to a psychometric study by Schaufeli and Van Dierendonck (1993b), the validity and reliability of the Dutch version is comparable to that of the original MBI. In the present study, the internal consistencies (Cronbach's α) of the three subscales are satisfactory: emotional exhaustion (9 items; $\alpha = .89$), depersonalization (5 items; $\alpha = .71$), and reduced personal accomplishment (8 items, $\alpha = .80$).

Uncertainty. As yet, there are no validated scales to assess uncertainty about one's own feelings, behaviors, or attitudes. Therefore, on the basis of informal interviews with nurses, an ad-hoc scale was constructed (5 items, $\alpha = .71$), that expresses the nurses' uncertainty about what to feel and think, and how to act in the work situation (e.g., "To what extent do you feel uncertain about how to deal with particular problems at work?").

Self-esteem. This personality characteristic was measured by employing an 8-item scale ($\alpha = .71$) developed by Warr and Jackson (1982), with proven reliability and validity.

Desire for social comparison. There are as yet no validated measures to assess the interest in social comparison information in real life. Therefore, an item was constructed as similar as possible to questions posed in experimental research. Subjects were asked to indicate on a 5-point scale ranging from *not at all* (1) to *very much* (5) to what extent they would like to know more about how others in a similar work situation feel and respond.

Direction of social comparison. The directional comparison preference (upward versus downward) was assessed with four questions, focusing upon both the desire for upward vs downward affiliation and information with respect to two dimensions, that is, competence and experience. Subjects were asked whether they would want to learn more about someone *much less competent* (1), *less competent* (2), *somewhat less competent* (3), *equally competent* (4), *somewhat more competent* (5), *more competent* (6), or *much more competent* (7). Subjects were asked in the same way and on the same scale if they preferred to talk with others more or less competent. Similar questions were asked about information seeking and affiliation with respect to experience, also on 7-point scales ranging from *much less experienced* (1) to *much more experienced* (7). A scale was constructed summing the four upward preference items. The alpha was .67 and could be raised to .72 by deleting the item referring to affiliation on the competence dimension. However, it was decided to leave this item in the scale. The item seems very relevant to testing hypotheses about the direction of comparison, because it concerns affiliation with high performing others on a quite relevant dimension.

Data Analysis

Because the sample was rather heterogeneous in terms of various demographic and work related variables, such as age, sex, number of years employed, percentage of time in direct contact with patients, work setting, and number of hours employed weekly, it was necessary to determine whether the data could be analyzed for the sample as a whole. Therefore, these objective variables were related to the major dependent and independent variables in the study: self-esteem, emotional exhaustion, depersonalization, reduced personal accomplishment, uncertainty, desire for social comparison, and directional preference.

The analyses showed no gender differences for these variables, and no significant correlations whatsoever between these variables and age, number of hours employed weekly, years of experience, and percentage of time

Table 1

Correlations Between the Predictor Variables

	2	3	4	5
1. Emotional exhaustion	.56	.47	.42	-.36
2. Depersonalization		.52	.38	-.40
3. Reduced personal accomplishment			.40	-.40
4. Uncertainty				-.43

Note. For all correlations, $p < .001$.

spent with patients. Only two effects of work setting were found: Community nurses were higher in emotional exhaustion than all other groups, and nurses in nursing homes had a higher level of uncertainty than nurses in general hospitals. Given the fact that these were the only significant differences out of many possible differences, the data for the sample as a whole was analyzed.

Given the potential important role of self-esteem, it was decided to also examine interaction effects between burnout and uncertainty on the one hand, and self-esteem on the other. Before calculating the interaction terms, the predictor variables were centered, that is, the mean score was subtracted from subjects' raw scores. This procedure is recommended to prevent problems of multicollinearity and computational errors on standard computer programs (Jaccard, Turrisi, & Wan, 1990). The correlations between the various predictors are presented in Table 1, indicating moderate correlations between the predictors. As the correlations were moderate, there was no serious problem of multicollinearity.

Results

Factors Affecting the Desire for Social Comparison Information

It was assumed that of the three occupational burnout dimensions, emotional exhaustion would have the strongest relation to the nurses' interest in social comparison information, and that uncertainty would have an additional and independent effect upon this interest. A multiple regression was carried out with desire for social comparison as the dependent variable. To control for the influence of self-esteem, this variable was entered as an independent variable

Table 2

Self-Esteem, Burnout, and Uncertainty as Related to the Desire for Social Comparison and the Desire for Upwards Comparison Information: Correlations (r) and Regression Weights (β)

	Desire for social comparison		Desire for upward comparison	
	r	β	r	β
Self-esteem	-.07	<i>ns</i>	.12*	<i>ns</i>
Emotional exhaustion	.18**	.18**	-.14*	<i>ns</i>
Reduced personal accomplishment	-.03	.18**	-.19**	-.16**
Depersonalization	.04	<i>ns</i>	.09	<i>ns</i>
Uncertainty	.21**	.19**	-.05	<i>ns</i>

* $p < .05$. ** $p < .01$, two-tailed

on the first step, the three burnout dimensions were entered on the second step, and uncertainty on the third step. To examine interactions with self-esteem, the product terms between on the one hand emotional exhaustion, depersonalization, reduced personal accomplishment, and uncertainty, and on the other hand self-esteem were entered in the final step.

When self-esteem was entered in the first step, no significant increase in explained variance was observed. As expected, the second step showed a significant effect of emotional exhaustion, $R_{Ch}^2 = .03$, $F_{Ch}(1, 293) = 9.93$, $p < .01$. Unexpectedly, reduced personal accomplishment also made a significant independent contribution to the interest in social comparison information, $R_{Ch}^2 = .01$, $F_{Ch}(1, 292) = 4.33$, $p < .05$. In the third step uncertainty had, as predicted, an additional independent effect upon the desire to learn more about the feelings and responses of similar others, $R_{Ch}^2 = .03$, $F_{Ch}(1, 291) = 9.42$, $p < .01$. When the interactions between self-esteem and the three burnout dimensions and uncertainty were entered in the final step, no significant effect was observed, indicating that the level of self-esteem in conjunction with burnout and uncertainty did not affect the interest in social comparison information. For the total equation, $R = .28$, $R^2 = .08$.

In Table 2 the beta's are presented, showing that emotional exhaustion, reduced personal accomplishment, and uncertainty had independent and

Table 3

Direction of the Desire for Social Comparison

	Information seeking		Affiliation	
	Competence	Experience	Competence	Experience
Much more	12.4	13.6	3.8	8.4
More	37.9	52.6	27.0	47.4
Somewhat more	17.0	15.3	19.7	20.6
Equal	30.5	18.1	49.5	23.0
Somewhat less	0.4	0.0	0.0	0.3
Less	1.8	0.0	0.0	0.3
Much less	0.0	0.3	0.0	0.0
M	5.26	5.60	4.85	5.39
SD	1.14	.97	.95	.97

additive effects upon the interest in social comparison information.² Nevertheless, reduced personal accomplishment did not have a significant zero-order correlation with the desire for social comparison. Thus, only when the effect of emotional exhaustion upon this desire was partialled out, reduced personal accomplishment was related to a desire for social comparison.

Factors Affecting the Direction of Preferred Social Comparison Information

As Table 3 shows, most nurses preferred upward comparison information, and virtually nobody expressed interest in downward comparisons. Nevertheless, there were clear differences between the comparison dimensions and comparison modes. For instance, only half of the subjects preferred to talk with more competent others, whereas over 80% preferred to learn more about more experienced others. A *t*-test for paired samples showed that the desire for information was significantly more upward in the case of experience than in the case

²Two additional dimensions of stress were not related to the desire for social comparison, that is, lack of control, measured with a 2-item scale ($\alpha = .62$), and imbalance between investments and outcomes in relationships with patients, measured with a 3-item scale ($\alpha = .66$)

of competence, $t(280) = 5.96, p < .001$. There was also a stronger preference for affiliation for the experience dimension than for the competence dimension, $t(284) = 8.57, p < .001$. Furthermore, the desire for information was more upward than that for affiliation, both in the case of competence, $t(279) = 4.67, p < .001$, and in the case of experience $t(282) = 3.20, p < .01$.

Two competing predictions on the upward preference for social comparison under stress were formulated: the self-improvement hypothesis predicting a stronger upward preference under stress, and the self-protection hypothesis predicting a weaker upward preference under stress. Again, a regression analysis was carried out to test these hypotheses, with the scale measuring directional comparison preference as the dependent variable, and self-esteem as independent variable in the first step, burnout in the second step, uncertainty in the third step, and the interactions between on the one hand self-esteem and on the other hand uncertainty and the three aspects of burnout in the step.

This analysis provided evidence for the self-protection hypothesis. Self-esteem had an independent effect upon the preference for upward comparison information, $R_{Ch}^2 = .01, F_{Ch}(1, 293) = 4.05, p < .05$, indicating that those low in self-esteem tended to prefer upward comparison information to a lesser extent than those high in self-esteem. In the second step, only reduced personal accomplishment produced a significant increase in variance, $R^2 = .02, F_{Ch}(1, 292) = 6.59, p < .01$, that made the original effect of self-esteem disappear. The other dimensions of burnout, uncertainty and the interactions with self-esteem did not have additional effects on the preference for upward comparison information. For the total equation, $R = .19, R^2 = .04$. Thus, nurses who feel bad about their accomplishments at work were relatively less interested in obtaining information about others more competent and more experienced. As Table 2 shows, emotional exhaustion had a zero-order negative correlation with the degree of upward comparison preference, indicating that nurses who feel exhausted do not prefer to make comparisons with others who are doing better. Obviously, this significant negative relationship disappears when exhaustion and accomplishment are entered simultaneously in the second step of the regression analysis.

Discussion

The purpose of the present study was to gain insight into the role of social comparisons in coping with stress at work by testing a number of hypotheses derived from social comparison theory in a sample of nurses. Partial support was found for the hypotheses. First, in line with recent research among married individuals (Buunk et al., 1991), and among disabled individuals (Buunk, in press), the tendency to seek out social comparison information was fostered by

uncertainty. Thus, the present study provides an additional validation in a field setting of early findings obtained in the laboratory (Gerard, 1963; Mills & Mintz, 1972), suggesting again the significant role of uncertainty about one's feelings and responses in generating a desire to learn more about the way others feel and respond. Second, emotional exhaustion appeared to affect the need for social comparison independent of uncertainty. This can be viewed as a substantiation in a rather different setting of Schachter's original hypothesis (1959) that the presence of negative emotions is in itself accompanied by a desire to learn more about the responses of similar others.

In addition to uncertainty and emotional exhaustion, reduced personal accomplishment had an independent effect on the desire for social comparison information. Thus, remarkably, this desire was higher among those feeling bad about their own performance at work. Although unexpected, this finding is easily understood when considering studies indicating a heightened interest in social comparison information after failure (Flett et al., 1987; Study 2). It seems that nurses who feel they are doing not as well as they should, want to know how others are doing to evaluate their current performance.

There was in general a strong preference for upward comparisons. Moreover, although not a central issue in the present research, it is noteworthy that there was a stronger upward tendency with respect to experience than with respect to competence. This finding may be explained from the fact that experience is probably felt to be more controllable. Even though upward comparison might be a little painful, one can learn from a more experienced person, whereas someone who is in general more competent may mainly be a threat to the way one feels about oneself (cf. Brickman & Bulman, 1977, Buunk, in press). Also in line with this perspective, upward comparisons were more preferred in the case of information seeking than in the case of affiliation. In this last case there appeared to be more avoidance of upward comparisons, probably because affiliation with better performing others requires face-to-face contact and is therefore more threatening to the self-esteem than merely obtaining information about such others (Buunk, in press; Smith & Insko, 1987).

We formulated two competing hypotheses on the direction of social comparison under stress. The desire for social comparison could be more upward under stress (self-improvement hypothesis), or more downward under stress (self-protection hypothesis). Although the data were not very strong, more support was given to the self-protection hypothesis, nurses high in reduced personal accomplishment preferred relatively less upward information. This suggests that those with doubt about their own competence, while having an elevated desire for social comparison, and while still preferring upward comparisons, are inclined to avoid learning more about others who are doing much better than they do themselves. Such behavior may constitute a way of

emotion-focused coping, aimed at protecting one's already shaken self-concept from further damage. This is in line with Leiter (1991) who observed among mental health workers that their levels of reduced personal accomplishment were positively related with what he called "escapist coping" (i.e., withdrawal and avoiding). Thus, there is some evidence that burned-out nurses may not use their social environment in a way that helps them to reduce burnout and to cope effectively with the stress imposed by their profession. Thus, the results of the present study support the recent view of Cherniss (1993), who considers burnout as a crisis in professional self-efficacy.

The present research seems to have several implications for current theorizing on social comparisons under stress, in particular for the models of Taylor and Lobel (1989) and Wills (1981). No support was found for the central assumption of Wills that in stressful situations information about, and contact with, others doing *worse* is preferred as a method of self-enhancement. The fact that those experiencing burnout had a less strong preference for upward comparison information may seem compatible with the model of Wills. However, virtually nobody, whether under stress or not, preferred information about others less competent or less experienced in their job. The Taylor and Lobel model predicts that individuals under stress will, for reasons of self-improvement, seek information about others doing *better*, and more or less implicit in this model is the assumption that this upward preference is *enhanced* among those under stress. However, we found that, although most subjects under stress preferred indeed upward comparison information, they had a somewhat *weaker* preference for upward comparison information than those not under stress.

There are, however, some limitations to deriving implications from the present research for the models of Wills (1981) and Taylor and Lobel (1989). First, it must be pointed out that our study was conducted in a rather different setting, in which other comparison dimensions play a role, than the research on cancer patients that led to the formulation of the model of Taylor and Lobel. In addition, although the model of Wills was based upon a broader array of research, it was not particularly geared to occupational stress. Furthermore, the present research examined an *active* interest in seeking out upward comparisons, and passive upward social comparisons, that is, comparisons that one is more or less involuntarily confronted with, may have more negative effects than downward comparison information (cf. Gibbons & Gerrard, 1991). Nevertheless, because Taylor and Lobel, as well as Wills, presented their models as general theories of social comparisons under stress, it seems important to consider the ability of these models to account for the present findings.

Finally, the study provided some evidence for the role of self-esteem. The zero-order correlation showed that those of high self-esteem were more interested in upward comparison information than those of low self-esteem. This

finding is in line with experiments showing that those with low self-esteem more often avoid upward social comparisons (Friend & Gilbert, 1973; Wilson & Benner, 1971). High self-esteem individuals probably feel less threatened by comparative information in general, and information about better off others in particular, and are more likely to use such information for problem-oriented coping when under stress.

There are some limitations to our data. First, although many effects were significant, the amount of explained variance is not very high (4% for comparison direction, and 8% for comparison desire), suggesting that both dependent variables may be affected by various other yet unknown variables. Second, it is self-evident that this correlational research does not provide definite answers concerning the direction of causality. However, it must be realized that the aim of this research was primarily descriptive, and that it is extremely difficult to assess in survey research the causal relations between variables such as those examined in the present study. Longitudinal research is also not the answer in this case, as the causal paths probably occur in a very short time period.

An additional limitation is that it is as yet unclear which motives underlie interest in social comparison information and the apparent preference for better off others. For instance, the desire for social comparison (and particularly upward comparison) may reflect the wish to make sense of one's situation, the need to obtain information about how one's coping style might be improved as well as the desire to find people not under stress who might provide stress reduction. Furthermore, the questions on social comparisons were formulated rather broadly, and nothing was said about the context in which the comparisons would take place. Therefore, it is hard to say to which type of situations the findings can be generalized. In general, the external validity of the social comparison questions is an important issue for future research.

Nevertheless, the present study provides some first evidence on the role of social comparison processes in coping with stress at work. Various authors have emphasized the importance of the social context at work for the development of burnout (Harrison, 1983; Maslach, 1982; Pines & Aronson, 1988). Although longitudinal research is necessary to satisfactorily examine this issue, this study is a first step in illuminating the role of the social context with respect to burnout. Furthermore, the present study links the theoretical social comparison literature to the more applied literature on stress at work. Particularly in the case of burnout, this fills an important gap since research in this area has been severely criticized because of its a-theoretical nature (Maslach & Schaufeli, 1993). Moreover, by testing hypotheses derived from social comparison theory in the applied setting of burnout, evidence was found that Wills' (1981) downward comparison theory and Taylor and Lobel's (1989) recent model may need some modification.

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