SOCIAL COMPARISON AND COPING
WITH MULTIPLE SCLEROSIS

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ABSTRACT

One hundred forty-three people with multiple sclerosis participated in the present study, which was an attempt to extend findings in the social comparison literature. The main goals were to investigate 1) the effects of time since diagnosis and functional status on social comparisons and mental health, and 2) affective consequences subsequent to comparisons with others. To attain the former objective, respondents were divided into three groups. Group one consisted of respondents who had been diagnosed with MS less than three years ago. Group two participants included people who had been diagnosed between five and ten years ago, matched on a case-by-case basis to group one respondents on functional status (a measure of physical disability). Group three was comprised of those who had also been diagnosed five to ten years prior, with more extreme cases of the disease than respondents in groups one and two. In contrast to downward comparison theory (which would predict that groups one and three would be most likely to downwardly compare and least likely to upwardly compare due to their greater threat), there were no differences between groups on frequencies of comparing with worse off others. Moreover, participants in group three were slightly more likely to make comparisons with better off others than respondents in groups one and two.

In the overall sample, an interesting pattern of
associations emerged between social comparisons, affective consequences, and a variety of other measures. Low levels of self-esteem and high levels of depression were positively correlated with making upward comparisons, yet were unassociated with downward comparisons. Optimism was unrelated to either. People lower on self-esteem and higher on depression were more likely to report feeling worse subsequent to comparing with others (especially better off others), yet were no more or less likely to report feeling better than their counterparts. Respondents higher on optimism were more likely to report feeling better subsequent to comparing with others, yet were no more or less likely to report feeling worse than those lower on optimism.

Overall, respondents reported feeling better more often than worse when comparing both upward and downward. Respondents were asked about social comparisons on two dimensions: physical condition and coping ability. Downward comparisons were correlated with more extreme affect (made respondents feel both better and worse) on the physical condition than coping dimension, presumably because of increased salience, impact of forced comparisons, perceived controllability, and distortability of information. Consistent with the notion that downward comparisons are not regarded as socially acceptable yet have important psychological implications, perceived appropriateness of making comparisons was unassociated with upward comparisons, yet positively correlated with downward comparisons.
Additionally, appropriateness was positively related to feeling good when comparing downward but not upward. As a whole, the findings support the notion that social comparisons are not intrinsically positive or negative, and demonstrate the importance of considering dimensions of comparison. Corroborating previous research, respondents demonstrated a positivity bias, that is, they believed they were doing better than others with MS, they downwardly compared more than they upwardly compared, and they reported feeling better after making comparisons more than they felt worse. Hence, both downward and upward comparisons seem to be used to attain psychological benefit, although respondents lower on self-esteem and higher on depression are more likely to report negative affective consequences.
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I. Introduction

Festinger's (1954) social comparison theory was primarily based on laboratory studies and was originally applied to the appraisal of abilities and opinions. In recent years, field research has extended the theoretical and empirical focus of social comparison theory to include people experiencing stressful life events. In line with this latter approach, the main focus of the present study is to explore social comparison and its use among people with Multiple Sclerosis (MS). First, social comparison and downward comparison theories are summarized and contrasted, followed by a literature review of social comparison and coping. Then, predictions concerning time elapsed since diagnosis and functional status, as well as affective consequences from social comparisons, are presented.

A. Overview of Festinger's social comparison theory

Social comparison theory, proposed by Festinger (1954), is concerned with the extent to which we utilize others as sources of information to assess our opinions and abilities. Festinger (1954) believes there is a drive toward self-evaluation (obtaining an accurate perception of self) and, when possible, we will employ objective standards (non-social information). However, when the veridicality of particular judgments or the assessment of performances cannot be directly ascertained, we will evaluate ourselves via comparisons with similar others (social information). Comparisons with similar others afford more accurate appraisal of our own performance and attitudes than
do comparisons with divergent others. For example, a novice chess player will not compare him or herself with those who have spent years perfecting their skills.

Although there are similarities regarding evaluation of opinions and abilities, differences between the two are also acknowledged: one may change opinions rather easily, but altering abilities may be somewhat more difficult to accomplish. Objective standards are also less likely to be available to judge opinions than abilities. Moreover, since there is value placed upon achievement (in Western culture, at least), there are simultaneous pressures to accomplish uniformity of ability and improve personal performance. Thus, social quiescence is less likely to occur with respect to abilities than opinions.

B. Contrasting social comparison and downward comparison theories

Festinger's theory largely focused on the evaluative function of social comparison, which is based upon the assumption that individuals are problem-solvers who carefully and logically integrate information. As such, people are assumed to gather information and function as intuitive scientists who are unbiased and rational. In contrast, downward comparison theory focuses on self-enhancement, which is aimed at obtaining information about the self which is favorable (Hakmiller, 1966; Wills, 1981). According to this latter view, the environment is cognitively construed in such a way that desirable pieces of information are selectively focused upon. Negative information about the self
may be systematically distorted or interpreted in a positive fashion (Taylor & Brown, 1988). While self-evaluation and self-enhancement may appear to be mutually exclusive, they are actually endpoints on a continuum (Wills, 1987). A balance between the two must be maintained or learning will not occur because of a failure to link behavior to environmental contingencies. Alternatively, those who lack self-enhancing illusions may be at risk to develop depression (Taylor & Brown, 1988).

While both social comparison theory and downward comparison theory are concerned with the extent to which others are viewed relative to the self, each will predominate in different circumstances. Specifically, under low stress social comparison processes are more likely (people will compare with similar others), whereas under conditions of threat downward comparison will prevail (people will compare with dissimilar or worse off others) (Gruder, 1977).

C. An overview of downward comparison theory

Hakmiller (1966) conducted the first study that questioned the belief that social comparison is utilized solely for self-assessment. Hakmiller hypothesized that subjects under conditions of high threat should compare with dissimilar inferior others more than subjects confronted with low threat. The prediction was borne out by the data. In the words of Hakmiller, downward comparison served a "defensive function." Such comparisons diminish the impact of threat, as evidenced by the
fact that a reduction of expressed disturbance was mentioned only by high threat subjects.

Wills (1981) integrated research findings of Hakmiller (1966) and other investigators and advanced a theory of downward comparison, which is based upon the basic principle that one may enhance feelings of personal worth under threatening conditions by comparing the self with another who is worse off. The following section reviews Wills's central arguments.

Downward comparison is largely a motivational-cognitive theory. Wills (1981) theorized that downward comparison is predominantly utilized in situations in which instrumental action is impossible or impractical. When one is confronted with threats to self-esteem, which is defined in terms of the degree to which one values oneself (Reber, 1986), subjective well-being is decreased and negative affect prevails. One method of restoring and maintaining a sense of well-being is to engage in downward comparison. Although one may feel better about his or her situation by comparing with someone who is worse off or equally unfortunate, when given the opportunity the former comparison is preferred (Wills, 1981).

Downward comparison may be relatively passive in certain circumstances, when salient others are chosen by virtue of various associations or situational opportunities, as exemplified by the fear-affiliation effect (Schachter, 1959) and humor literature (Zillmann & Cantor, 1976). In other circumstances, downward comparison may be actively initiated, either by verbal
denigration of another person (known as scapegoating) or by administering physical harm (termed hostile aggression and displaced aggression) (Wills, 1981). Active cognitive downward comparison in the absence of overt behavior may also occur (Taylor, Wood, & Lichtman, 1983).

Since downward comparison may be viewed as a homeostatic mechanism to enhance subjective well-being when it is lowered, Wills (1981) proposed those who are chronically or temporarily low in self-esteem will be especially likely to engage in comparison with a less fortunate other. Those chosen as the targets of downward comparison will predominantly be low status individuals, who are considered acceptable to derogate by the prevailing culture. Nonetheless, there is a certain ambivalence about comparing the self with others who are worse off: on the one hand, substantial psychological benefit may be gained from doing so in the form of tension reduction and positive mood elevation. On the other hand, there are social norms which do not view downward comparison as an admirable process and discourage the use of such procedures to a certain degree (cf. Brickman & Bulman, 1977). Moreover, not everybody will demonstrate downward comparison in response to aversive stimuli, since the processes are learned cognitive strategies that are subject to individual-differences, as are other learned behaviors (Wills, 1981).

D. Social comparison and coping

Although social comparison has been investigated for over
three decades, only recently has research focused on the use of social comparison as a coping mechanism. Currently, the specific mechanisms involved are not well understood, although some tentative findings may be advanced.

As previously noted, Wills (1981) proposed that persons experiencing negative affect as a result of lowered self-esteem may attempt to restore their subjective well-being by downward comparison. Although research has more or less supported such a notion, recent evidence suggests threat is neither a necessary nor sufficient precondition for downward comparison processes to be evinced. While some studies have found that persons low in trait self-esteem may make downward comparisons (Friend & Gilbert, 1973), other studies have found that when threatened, individuals high in self-esteem denigrate outgroups when group membership has evaluative implications (Crocker & Schwartz, 1985; Crocker Thompson, McGraw, & Ingerman, 1987). As well, people may have a tendency to evaluate themselves favorably relative to others, in the absence of threat (Wood, in press).

Various downward comparison strategies may be employed in order to protect self-esteem. According to Wills (1987) and to work by Taylor and her colleagues (Taylor et al., 1983; see also Wood, Taylor, & Lichtman, 1985), individuals can imagine worse alternatives (termed "hypothetical worse worlds") so that one appears advantaged in relation to what could have happened. A passive form of downward comparison involves an accidental or coincidental viewing of a disadvantaged target. Moreover, one
may deviate from logical information-processing approaches by selectively abstracting positive attributes about the self or assuming negative attributes are common in the population. Active use of comparison may involve selective focus in which one chooses a target who is similar in terms of adjustment, yet is worse off on a particular dimension. Alternatively, one may choose as a target an equally unfortunate other who is coping worse than the self with some particular aspect. Selective target choice may be accomplished by seeking out someone who is worse than the self with respect to many dimensions, although such a strategy may be quite restrictive.

Taylor et al. (1983) examined various coping strategies utilized by breast cancer patients. According to these authors, experiencing a stressful life event is an aversive state and individuals labelled as victims will engage in selective evaluation as a self-enhancing strategy. Briefly, situations are cognitively constructed so that the beneficial aspects of an unfortunate situation are stressed. In addition to three strategies mentioned earlier (comparison with a disadvantaged target, selecting a dimension of comparison on which the self is advantaged, and the creation of hypothetical worse worlds), selective evaluation includes finding meaning from the negative experience by construing benefit from it, and manufacturing normative standards of adjustment with which the self compares favorably.

In a follow-up article (Wood et al., 1985), the efficacy of
four comparison strategies in breast cancer patients was examined. The supercoper perspective, which is based on the assumption that contact with comparison others may be unavailable for many patients, was not supported. Evidence for the similarity hypothesis, which suggests comparisons are made with similar others, was mixed since patients made a preponderance of comparisons with other cancer patients, yet rarely compared themselves with those who were similar in terms of physical status, life situations, or related attributes. While a few comparisons were made with advantaged others (upward comparisons), by far the most prevalent comparisons were with disadvantaged others (downward comparison).

In contrast to the proposition by Wills (1981), Wood et al. (1985) did not find that threat leads to downward comparison. However, Wood et al. (1985) used objective measures of threat such as severity of surgery and prognosis, which may not correspond with patients' subjective impressions. Even so, evidence was provided for the suggestion that downward comparisons may function to protect the cancer patient from being overwhelmed by frightening new circumstances, since women who had recently received surgery were more likely to downwardly compare than those who had been operated on some time earlier.

Schulz and Decker (1985) interviewed spinal-cord injured persons who had been involved in accidents an average of twenty years earlier. The authors found only limited support for the use of downward comparisons. For example, only 25% of
respondents mentioned comparisons with other disabled persons, 16% said they compared themselves with nondisabled persons, and the rest said they didn't compare themselves with any particular group of persons. In addition, spinal-cord injured persons readily imagined hypothetical better worlds (which can be contrasted with Taylor et al., 1983) and rated their current life situation as less favorable than it had been for themselves prior to the accident. Nonetheless, there was some support for the use of downward comparisons, since respondents selectively focused on advantaged attributes, attached meaning and benefit to the stressful life experience, and based standards of adjustment on attributes at which they could excel. Quite possibly, these respondents may have been utilizing social comparisons more often in their everyday lives than they admitted, yet be confused by the way the question was asked. Indeed, Schulz and Decker (1985) mentioned that some people had difficulty responding.

A longitudinal questionnaire study was conducted by Thompson (1985), in which people whose homes were burned by fire were contacted immediately after the incident and again one year later. The author examined five strategies that individuals used to reevaluate the event as a positive one. These included finding side benefits such as increasing familial contact and support, downward comparison, imagining worse situations, forgetting the negative, and redefining the situation in a way that one's expectations did not exceed likely outcomes. The five methods were highly intercorrelated, and were endorsed by the
majority of respondents. Focusing on positive aspects of the stressful event was significantly correlated with effective coping, immediately after the fire and one year later. Positive reevaluators also mentioned fewer physical symptoms and more positive affect at both time intervals.

Molleman, Pruyn, and van Knippenberg (1986) investigated social comparison among a general population of cancer patients via questionnaire. The authors derived hypotheses according to classical formulations proposed by Festinger (1954). As predicted, patients preferred expert sources to non-expert ones to reduce uncertainty. Yet, when professional opinion was unavailable patients had a need for social comparison with fellow patients. Contrary to the findings by Wood et al. (1985), Molleman et al. (1986) found an overwhelming preference for respondents to compare with fellow patients who were similar or slightly better off. However, the two studies differ in terms of the ways in which comparisons were operationalized. Molleman et al. (1986) asked subjects about who they would prefer to interact with, whereas Wood et al. (1985) coded explicit comparison statements. Taylor and Lobel (in press) have noted that people under threat prefer to evaluate themselves against worse off others (downward evaluation), yet affiliate with better off others (upward contacts). Thus, divergent findings in the social comparison literature highlight the need to distinguish between operational definitions of social comparisons and the discrepant needs associated with them.
Affleck, Tennen, Pfeiffer, Fifield, & Rowe (1987a) provided data on downward comparisons among mothers of high-risk infants and people afflicted with rheumatoid arthritis. Mothers of high-risk infants were interviewed either during or shortly after their newborn was in the intensive care unit and rheumatoid arthritis patients were interviewed an average of ten years (SD = 8.25 years) post-onset of illness. Mothers not only tended to view their child's illness as less severe than average, they also perceived adjustment as better. Comparable results were obtained with the arthritis sample. There were no statistically significant differences between the samples on either of these ratings. Mothers of high-risk infants mainly provided downward comparisons based on the child's medical condition and worse possible hypothetical outcomes, whereas arthritis patients referred almost exclusively to severity of illness. Few unfavorable comparisons were spontaneously mentioned by any respondents. Interestingly, self-reports of mood were unrelated to the number or type of social comparisons made. Nonetheless, arthritis patients who viewed their illness as less severe than others were perceived as better adjusted by health care providers, controlling for actual illness severity.

All of the work discussed thus far is based on the assumption that a comparison in a given direction (upward or downward) will be associated with a particular affective reaction (upward-negative, downward-positive). Recently, Buunk, Collins, VanYperen, Taylor, and Dakof (1989) have extended the
original downward comparison formulation by suggesting that comparisons can produce either positive or negative feelings depending upon how one interprets the information. For instance, while downward comparisons can make one feel lucky and grateful, they can also increase one's anxieties and fears about getting worse in the future (cf., Wood et al., 1985). Similarly, upward comparisons can lead a person to feel frustrated and depressed because one is not as fortunate as others, but they can also have a comforting and inspirational effect because it is possible for one to improve. In Buunk et al. (1989), while perceived self control over daily symptoms and the future of one's illness were negatively correlated with feeling bad as a result of making comparisons, perceived other control was unrelated to negative affect. In addition, negative affect as a consequence of making upward and downward comparisons was significantly more common among cancer patients with low, rather than high, self-esteem.

E. Population under investigation: Multiple sclerosis

Multiple sclerosis (MS) was chosen as the population to study for several reasons. First, since the etiology of MS and control of degeneration are beyond present medical expertise, cognitive coping mechanisms may be especially likely and important. This assumption is supported by Wills's (1987) contention that downward comparisons will be more prevalent when instrumental action is impractical or impossible. Second, the disease has an unknown trajectory, although those with MS may be more likely to deteriorate than those who have been afflicted.
with injuries such as paraplegia. In other words, MS presents an ongoing threat and adaptation may involve different cognitive concomitants than negative life events where the trajectory is relatively stable. Third, the population from which the sample was drawn (British Columbia Division of the Multiple Sclerosis Society of Canada) represents a fairly large cross-section of individuals with MS.

MS is the most common central nervous system disease among young adults in Canada (Groetzinger, 1986). Initially, a diagnosis is usually made by eliminating options, since no specific medical test exists for positive diagnosis. MS is a degenerative neurological disease in which demyelination of axons occurs, resulting in visual impairment, paralysis, shaky hands, loss of bladder and bowel control, speech problems, weakness, numbness, and loss of coordination or balance (Pavlou, 1984). However, there is substantial variation between people and even within the same person across time, depending upon the area in the central nervous system that is affected. Symptoms may come and go over a period of years and prediction of exacerbations is difficult if not impossible: one may live with relatively mild symptoms throughout the course of the disease or may end up confined to a wheelchair or bed. The uncertainty of symptom exacerbations (a worsening or reappearance of symptoms lasting at least 24 hours) is one of the major stressors that those with MS experience (Davis, Pavlou, & Hartings, 1986). A lack of control over symptoms and disease course may lead to difficulties
planning for the future. Because the disease usually strikes between 20 and 40 years of age (Seland, 1984), people with MS may be concerned about issues regarding child-bearing and child-rearing, self-sufficiency, career aspirations, and general mobility. Although MS itself is usually not fatal, life expectancy may be affected by respiratory and/or urinary infections (VanderPlate, 1984).

Canada is a high-risk country for developing the disease, since areas further away from the equator are more likely to be affected (Matthews, Acheson, Batchelor, & Weller, 1985). Women are more prone to develop MS than men, as are those who live in areas with high standards of sanitation (Lechtenberg, 1988). While the etiology of MS is unknown at the present time, researchers believe the disease may be caused by a virus, defects in the autoimmune system, or genetic susceptibility (Devins & Seland, 1987). The treatment of MS is equally elusive, although specific symptoms may be alleviated somewhat by medication or surgical treatments.
II. Issues of investigation

Although the studies reviewed above have shed some light on the use of social comparison within the coping context, a great deal is still left to be understood. Below, specific issues to be investigated are outlined and methodological concerns addressed.

A. Time-frame of stressful life experience

A selection of respondents on the basis of time elapsed since diagnosis is potentially important from the point of view of MS research specifically, and social comparison research generally. First, investigators have noted that the amount of time one has had MS may affect adjustment (Devins & Seland, 1987). However, an examination of the literature reveals that, aside from correlating duration of illness with other variables, few researchers have utilized time-frame as an independent variable. Halligan and Reznikoff (1985) and Brooks and Matson (1982) are notable exceptions. The former authors selected three groups of 20 MS outpatients: people who had the disease for: 1) less than five years, 2) between five and 15 years, or 3) more than 15 years. Brooks and Matson (1982) conducted a longitudinal study over a seven year period, although no patients who had had MS for less than eight years were included.

Second, because downward comparison has been postulated as a coping mechanism (Taylor et al., 1983; Wills, 1981, 1987), people may benefit more from making such comparisons at some stages than others. Given that threat is probably greatest either early in
the process or immediately following a setback (or exacerbation), it makes sense to assume that these periods will be the most likely to elicit downward comparisons. If people are far enough away from the threat (e.g., from diagnosis or from the latest setback), they may not have as great a need for downward comparisons as a coping technique. This time-frame prediction suggests that downward comparison is a fluid process that one holds and then abandons when the need is no longer there (or as Schulz & Decker, 1985, mention, when the individual has "adapted" and is no longer in the process of adaptation). Because incapacitation is another potential source of threat, quite possibly those who have had the disease for several years and have restricted mobility will also have a strong need to make downward comparisons. On the other hand, downward comparison could also be a stable process which, once put in place, remains as a way of helping people resolve their fears and uncertainties. This latter prediction would be supported if downward comparisons were mentioned by respondents equally often at different times in the coping process.

All of the preliminary empirical evidence is consistent with the former prediction: downward comparisons are more prevalent shortly after onset of the negative life experience. Correlational data from breast cancer patients suggest downward comparisons may be used more often by patients who recently received surgery than those who have been coping with the illness for a longer period of time (Wood et al., 1985). Similarly,
Affleck et al. (1987a) found that recently diagnosed rheumatoid arthritis patients made more downward comparisons in terms of illness severity than did their counterparts who had not been recently diagnosed. Moreover, mothers of high-risk infants made more downward comparisons than arthritis patients (who had been dealing with their problem for a longer time). Schulz and Decker's (1985) finding, that spinal-cord injured persons did not downwardly compare very much, is consistent with the notion that downward comparisons are superfluous once one has adapted to a negative life event, since their respondents had been dealing with the disability for an average of two decades.

One potentially important way the present study differs from previous research is that most investigators have studied illnesses in which the prognosis is positive, stable, or at least not clearly deteriorating. For instance, persons who have spinal-cord injuries are not likely to suffer a further reduction in mobility capacity. Similarly, if surgery or chemotherapy is successful, individuals with breast cancer may never have a recurrence of symptoms and may live a relatively normal existence. In contrast, the trajectory of those with MS is more uncertain, and physical deterioration is a possibility. If downward comparison is an effective coping mechanism, a lack of differences in the use of comparisons at various points subsequent to being diagnosed with MS may be due to different trajectories associated with different illnesses or disabilities.

Downward comparisons among those with MS may be high shortly
after being diagnosed because of adjustments that must be made in one's life. Perhaps those with MS may utilize downward comparisons more, less, or equally often, right after diagnosis and years later, depending upon level of disability. Those whose physical capacity has been relatively unaffected by the disease may use downward comparisons less than they did earlier, whereas those who have deteriorated may use downward comparisons equally often (or more) after being afflicted with the disease for a number of years.

Past researchers have only correlated time elapsed since diagnosis with downward comparisons. In the present study, time frame will be included as an independent variable and differences on downward comparisons as a result of this categorical distinction will be investigated (for more details, see "Sample" section).

Other predictions may be advanced based upon a division of respondents according to time-frame. The underlying tenet of downward comparison theory is that threat leads to a reduction in positive affect and self-esteem, increased negative affect, and a need to boost subjective well-being (Hakmiller, 1966). Moreover, Wills (1981) states that persons low in self-esteem have a greater need for self-enhancement and are therefore more likely to engage in downward comparison than individuals high in self-esteem ("personality corollary"). Even though empirical literature supports such contentions (Gibbons, 1986; Wilson & Benner, 1971), there are conflicting data and interpretations.
While depressives demonstrated no consistent bias to depreciate themselves relative to others, they were less likely to engage in self-enhancement than nondepressives (Crocker, Kayne, & Alloy, 1985; Tabachnik, Crocker, & Alloy, 1983). In addition, Crocker et al. (1987) found that although people low in self-esteem evaluate others negatively, these evaluations do not reflect self-enhancement. Derogation of outgroups (relative to ingroups) was more common among individuals high in self-esteem than low self-esteem. Based on predictions from downward comparison theory, it logically follows that level of threat will be associated with downward comparisons, optimism, self-esteem, and depression. In the present study, threat is operationalized in terms of functional status and year of diagnosis. Presumably, those who are more physically impaired or who have been recently diagnosed are the most threatened. It is hypothesized that more threatened respondents will make more downward comparisons, have lower optimism, lower self-esteem, and higher depression scores.

If the above prediction is borne out by the data, several interpretations are possible, two of which are discussed here. First, the causal link may be such that high threat, low optimism, low self-esteem, and high depression lead to more downward comparisons. Second, the association between variables may be spurious. Because the present study is correlational, the influence of third variables cannot be entirely ruled out (cf. Thompson, 1985). One variable that may create a spurious relationship between comparisons and: optimism, self-esteem and
depression is contact with other people who have MS. Conceivably, respondents who have taken part in support groups or who have friends with MS may become more or less optimistic, depressed, or have their self-esteem altered. On the one hand, contact with others with MS may make one feel that the future is hopeless and reinforce the notion that one's own deterioration is inevitable. On the other hand, contact with other people with MS may serve to inspire one to believe that, while MS creates some limitations, they are not insurmountable and one may still live a worthwhile existence. Contact with others with MS may lead one to think more about comparisons generally. In other words, contact may prompt individuals with MS to utilize others as sources of information more readily than would be the case if comparison targets were not available. Contact with others will be statistically controlled to test for these possibilities.

Similarly, a relationship between downward comparison and optimism, self-esteem, and depression may be accounted for by severity of illness. Perhaps those who have better adjustment scores have also suffered less and are able to accurately recognize that others are worse off than they are. If downward comparison serves a useful coping function, then a correlation between comparisons and functioning should still remain significant, independent of actual severity of illness (cf. Affleck et al., 1987a). This alternative explanation will be tested by controlling for severity of illness.

Current evidence on the link between use of downward
comparisons and functioning is mixed. Affleck et al. (1987a) found a positive association for arthritis patients, but not for mothers of high-risk infants. Differential dependent measures for the two populations may be responsible for the conflicting results: a validated instrument was available to assess adjustment for arthritis patients (Global Adjustment to Illness Scale, GAIS, Derogatis, 1975), but not for mothers' adjustment. Instead, the authors relied on judgements of realistic appraisal of the child's condition by mothers as rated by nurses. Wood et al. (1985) also employed the GAIS (Derogatis, 1975) to measure functioning, but did not find a correlation with this measure and downward comparisons for breast cancer patients. In contrast, Thompson (1985) found a link between the use of downward comparisons and coping for people whose houses had been burned in fires, based on a direct question of coping and measures of physical symptoms, positive emotions and pleasure. These discrepant findings (two confirmatory, two disconfirmatory) may be attributable to the fact that the use of downward comparisons may be adaptive for only certain types of negative life experiences, such as chronic illnesses. Alternatively, downward comparisons may be adaptive for many different types of negative life experiences, yet were not well assessed by instruments that had not been validated. Even in the Wood et al. (1985) study, in which a psychometrically sound instrument was employed, the lack of statistical significance may be due to the fact that physicians and interviewers were not provided with enough information to accurately make an assessment of adjustment.
One must bear in mind, however, that the interpretation of correlations may be confusing. One the one hand, the more downward comparisons that are made, the better one may feel. On the other hand, the worse one is doing, the more downward comparisons one will make. In other words, if comparisons are conceptualized as a process occurring along a continuum, correlations will mean different things depending on the point that one is in the process of adaptation.

B. Affective consequences of comparisons

Researchers have repeatedly demonstrated that comparing with others may have emotional consequences (Schachter, 1959), ranging from generalized arousal (Jamieson & Kaszor, 1986), to calm, fear, and desperation (Hansson, Noulles, & Bellovich, 1982). As discussed above, Buunk et al. (1989) extended the original downward comparison model to explain why downward comparisons do not always help one feel better and upward comparisons do not always make one feel worse. To review, comparisons may make one feel better or worse depending on how the situation is construed. If one is doing poorly relative to others, one may focus on the fact that improvement is possible or concentrate on the unfavorable situation one is confronted with. Similarly, learning that another is worse off provides information that one is doing better or that it is possible for the self to deteriorate on the dimension under consideration. Negative affective consequences may be avoided by focusing on the positive aspects, whereas concentrating on the negative information that a
situation provides may make one feel worse, regardless of whether one engages in downward or upward comparison.

In theory, one's physical condition and how well one is coping with MS are orthogonal dimensions, so that one may be high on one, both, or neither. Empirical evidence supports the notion that social comparisons may be made on physical dimensions (Affleck et al., 1987a; Wood et al., 1985) and life situation (Schulz & Decker, 1985). In addition, respondents often see themselves as better off than others in terms of coping or adjustment (Affleck et al., 1987a; Pearlin & Schooler, 1978; Taylor, Aspinwall, Dakof, & Reardon, 1989; Wood et al., 1985). Comparisons in which targets selected are downward on the physical dimension, but not the coping dimension, have been reported (Taylor, 1983; Taylor et al., 1983). However, even though research has demonstrated that comparisons may be made on the coping and/or physical health dimensions, no studies have systematically investigated the affective consequences of making such comparisons.

Perhaps downward comparisons are threatening only when they are related to physical condition and not when they are associated with coping. If so, such results may be, at least in part, associated with perceptions of control. Past researchers have found that the perception of greater personal control may be correlated with elevated mood and adjustment (Affleck, Tennen, Pfeiffer, & Fifield, 1987b; Taylor, Lichtman, & Wood, 1984). However, MS, which is a disease often associated with a
deteriorating trajectory, may lead respondents to believe they have limited control over the course of their illness. In contrast, respondents may feel they can exercise more personal control over how they cope with their situation than their physical condition because coping may be perceived as influenced to a greater degree by volition and effort. Corroborating such a suggestion, Weiner, Perry, and Magnusson (1988) note that physically based stigmas were perceived as onset-uncontrollable, whereas mental-behavioral stigmas were regarded as onset-controllable. If the results of Weiner et al. (1988) regarding perceptions of control may be generalized to the physical condition/coping dimensions among people with MS, and perceptions of control are associated with less negative affect, respondents in the present study may be more likely to report feeling bad as a result of making downward comparisons related to physical condition than those related to coping.

Although Buunk et al. (1989) found that self-esteem and personal control were associated only with negative affective consequences of comparisons (also predicted here), three additional variables from the present study seem potentially interesting: optimism, depression, and beliefs about trajectory. Generally, people are overly optimistic about what will happen to them in the future. Undergraduates rate their chances as being greater than average of experiencing positive events (Weinstein, 1980) and less than average of experiencing negative life events than others (Perloff & Fetzer, 1986). Optimism as a
dispositional variable has been defined as a generalized expectancy that good things will happen irrespective of causal and situational influences (Scheier & Carver, 1985). In other words, optimists anticipate good outcomes and are inclined to perceive actions and events in a favorable manner. In contrast, pessimists expect things will not go their way and interpret information in a negative fashion. Based on self-report measures in a prospective study, optimism was inversely correlated with symptoms, even when initial symptom levels were partialled out (Scheier & Carver, 1985). In addition, optimistic and depressed patients were perceived differently by health professionals in terms of feelings, adjustment, likeableness, prognosis, and even treatment strategies, especially for less stigmatized conditions (Westbrook & Nordholm, 1986). Other findings in health psychology support the idea that dispositional optimism is a mediator of how people respond to stress (Scheier, Weintraub, & Carver, 1986). Because optimists look on the bright side of life, it is predicted that those higher on optimism will be more likely to report feeling good after comparing with others than respondents lower on optimism, but no more or less likely to feel bad.

People who are depressed tend to present themselves more negatively than those who are not (Coyne & Gotlib, 1983). Moreover, while nondepressed people are biased toward positive evaluation, mildly depressed people display less biased patterns of responding (Ruehlman & West, 1985). Vulnerable depressives
recall both positive and negative features of self-referent material, whereas nondepressives recall more non-depressed-content adjectives (Kuiper, Olinger, MacDonald, & Shaw, 1985). Taylor and Brown (1988) review evidence indicating that depressives are less likely to demonstrate illusions of control, mastery and optimism than their non-depressed counterparts. Taken as a whole, the depression literature suggests the hypothesis that depressed people will be more likely to report negative affect subsequent to comparing with others than those who are nondepressed. Consistent with the findings of Buunk et al. (1989), no differences are predicted for positive affective consequences.

People who view their trajectory in roughly negative terms may be fearful because seeing others doing worse provides a threatening view of the future (Coates & Winston, 1983; Wood et al., 1985). While such a suggestion seems reasonable, Buunk et al. (1989) found that cancer patients' objective likelihood of getting better or worse was unrelated to emotional responses to comparisons. However, the measure of prognosis was an objective one, based on an oncologist's rating on a five-point scale (ranging from grave prognosis to probable cure). In the present study, the measure of trajectory is a subjective evaluation from the MS patient him or herself about the future. Since social comparison has recently been regarded as largely an active, cognitive theory (Perloff & Fetzer, 1986; Wood et al., 1985), perhaps affective consequences of comparisons will be more highly
associated with subjective responses about trajectory than objective measures. Because of the fear of getting worse, it is hypothesized that an unfavorable perception of the future will be related to negative affective consequences of comparing with others (especially in the downward direction), but unrelated to positive affective consequences.
III. Method

A. Recruitment of respondents

Participants were obtained through the British Columbia Division of the Multiple Sclerosis Society of Canada. In order to update and extend personal information currently on file, the MS Society, in conjunction with our research group, sent out a Confidential Registration Form to all of its clients and members who are listed on their master list as having MS. The form includes relevant data, such as name, gender, marital status, year of diagnosis, participation in self-help groups, and functional status. Six hundred fifty-seven forms were completed and returned. Thus, respondents were selected from a large pool of possible candidates, instead of hospitalized or neurology clinic patients. The inclusion of just the latter types of participants presumably biases toward more severe cases, because they are likely to be experiencing exacerbations or undergoing diagnosis (VanderPlate, 1984). Admittedly, however, no selection process is free from flaws, and Miles (1979) has noted that Multiple Sclerosis Society members may be more likely to disassociate from the healthy community than nonmembers.

B. Sample

Three groups of respondents were chosen for the present study, based on answers provided on the Confidential Registration Form. Specifically, participants were selected according to their 1) year of diagnosis, and 2) functional status. The functional status scale was adapted from Kurtzke (1955, 1965) to
measure the degree of physical disability in people with MS. Although Kurtzke's scale was completed by doctors, for practical reasons, respondents in the present study filled out the measure themselves (see Appendix A for the modified scale). Therefore, medical jargon was excluded, while at the same time maintaining the relevant distinctions between categories. The higher score received, the greater impairment due to neurologic dysfunction.

Group one consisted of individuals who discovered they had MS within the past three years. Group two was comprised of those with MS who had been diagnosed between five and ten years ago, matched on a case-by-case basis to group one respondents according to functional status. Group three was comprised of those also diagnosed between five and ten years ago, who scored at least five on the nine-point continuum on functional status (the mid to high range). The division of groups in this manner will enable testing of the time-frame and functional status predictions described earlier.

A total of 187 questionnaires were sent to 65, 61, and 61 potential respondents in groups one, two, and three, respectively. One hundred forty-three were completed and returned, yielding a response rate of 76%. Because it is possible that those in group three would find it difficult to write because of reduced physical capacity and/or emotional impairment, response rates were calculated across groups. Groups one (83%) and two (79%) returned approximately the same percentage of questionnaires; those in group three (65%)
responded slightly, but not significantly, less often, $X^2(2, N = 143) = 4.65, p < .10$. To determine if those who refused were actually physically worse off than those who returned the questionnaire, functional status scores were compared for group three. There was a trend for people who were more physically disabled not to complete and return the questionnaire, $t(59) = 1.74, p < .10$.

C. Procedure

After potential respondents were selected according to year of diagnosis and functional status, questionnaires (see Appendix B) and accompanying letters (see Appendix C) were sent with the help of an MS Society staff member and several volunteers. The mail-out process was a complicated and arduous one, so that the researchers did not have access to names and addresses. Therefore, anonymity was assured to each respondent, who, if they were willing, completed the questionnaire and returned it in a self-addressed stamped envelope.

D. Questionnaire Completion

Because those in group three are more severely disabled than respondents in the other two groups, participants were asked if they completed the questionnaire themselves or if someone else filled in answers as they dictated responses. Groups differed on this question, $X^2(2, N = 137) = 13.76, p < .001$. Ninety-four, 96, and 73% in groups one, two, and three, respectively, completed questionnaires by themselves. Thus, although more people in group three had others mark the answers, the majority in all groups worked alone.
E. Dependent measures

The questionnaire is presented in Appendix B. Previously developed measures were utilized when available and chosen if, in addition to their content, 1) information regarding the psychometric acceptability of the instrument was available, 2) the scale was easy to administer, and 3) the scale was brief. Otherwise, original questions were constructed or adapted from other researchers.

1. Optimism

The Life Orientation Test (LOT; Scheier & Carver, 1985) is a measure of dispositional optimism. The LOT is presented on five-point scales (ranging from strongly disagree to strongly agree) and comprised of twelve items, four of which are filler items to help prevent respondents from guessing the purpose of the scale. Of the eight scored items, four are keyed in a positive direction, and four are keyed in a negative direction, to control for response acquiescence. The LOT possesses adequate construct, convergent and discriminant validity, internal consistency, and test-retest reliability (Scheier & Carver, 1985).

2. Self-esteem

Self-esteem was assessed using Rosenberg's (1965) self-esteem scale, a widely used 10-item measure of the self-acceptance aspect of self-esteem. Questions were presented on four-point scales (ranging from strongly disagree to strongly agree). Adequate test-retest reliability, convergent, discriminant, and predictive validity have been reported (Robinson & Shaver, 1973).
3. Depression

The 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1975; 1977) was used in the present study to measure negative affect. Questions were presented on four-point scales and participants were asked to indicate how often during the past week (rarely, some of the time, a moderate amount, or almost all of the time) they felt or behaved in a number of ways. The CES-D is a self-report scale which is comprised of items from previously validated longer scales. In contrast to previous depression scales that have been used primarily for diagnosis and evaluation of illness in clinical populations, the CES-D measures levels of depression among the general population, with an emphasis upon mood. Adequate validity, internal consistency, and test-retest reliability are reported by Radloff (1977).

4. Life events

Subjects were asked to check which of ten items, if any, had happened to them since being diagnosed with MS. The stressful life experiences included: 1) become (re) married, 2) lost a spouse through death, 3) lost a job or been laid off, 4) had a serious personal injury (excluding MS symptoms), 5) retired, 6) had a decline in financial status, 7) been divorced, 8) become separated, 9) had a spouse lost their job or get laid off, and 10) had someone in the immediate family experience a serious personal injury or illness.
5. Social comparisons

A major focus of this thesis relates to social comparisons and, therefore, a number of these types of questions were asked. Because there are no scales available to measure the constructs of interest, items were developed specifically for the present study or were adapted from other researchers. All comparisons questions were coded on Likert scales, ranging from one (never) to nine (almost always).

6. Upward comparisons

Three questions, adapted from Taylor (1986), were asked about the extent to which respondents made upward comparisons. For each question, participants were asked, "How often have you compared yourself to other people with MS who are better off than yourself with respect to," followed by 1) "level of disability, prognosis, or other disease-related issues," 2) "ability to cope with the condition and its consequences," and 3) "level of support provided by friends and family?" A composite score for upward comparisons was formed by summing the three individual items. Inter-item correlations ranged between .55 and .67.

7. Downward comparisons

The same three questions regarding upward comparisons were modified appropriately and asked about worse off others. A downward comparison composite was formed by summing the three items for worse off others. Inter-item correlations ranged between .36 and .63.
8. Other comparisons

Respondents were asked two questions relating to comparisons with others who do not have MS: "How often have you compared yourself to people," followed by 1) "with other illnesses or disabilities (e.g., heart attacks, cancer, strokes, diabetes)," and 2) "your age who do not have MS or any other illness or disability?"

9. Affective consequences

All respondents were asked questions that were modified from Buunk et al. (1989) regarding feelings produced after comparing with others with MS. Buunk et al. asked respondents four questions regarding how often they: feel better when comparing upward, feel better when comparing downward, feel worse when comparing upward, and feel worse when comparing downward.

An element missing from Buunk et al.'s (1989) questions is the potentially important distinction between coping (i.e., how well one is dealing with the disease) and physical condition (i.e., extent of physical limitation or symptoms). The original four questions were reworded to include the coping/physical condition distinction, resulting in eight questions. The following is the downward/physical condition/negative affect comparison question: "Some people say that seeing others with MS who are worse off than they are with respect to their physical condition makes them feel worse, that is, increases their fears and anxieties about getting worse themselves. How often have you had thoughts that are similar to these?" The seven other
affective consequences questions that were asked relate to 1) downward/physical condition/positive affect, 2) downward/coping/negative affect, 3) downward/coping/positive affect, 4) upward/physical condition/negative affect, 5) upward/physical condition/positive affect, 6) upward/coping/negative affect, and 7) upward/coping/positive affect. Several scales were formed, summing various affective consequences items. All of the feeling good questions were added to make a positive affective consequences composite. The positive affective consequences scale was further subdivided into feeling good as a result of comparing: 1) up or 2) down. Similarly, the items in which one felt worse as a result of making comparisons were summed to form a negative affective consequences scale, which was subdivided into feeling bad from comparing 1) up and 2) down.

10. Appropriateness of making comparisons

Participants were told, "Some people don't feel it is right to compare themselves with others and try to avoid doing so. In contrast, some people feel comparing with others is useful to gain information." Subsequently, respondents were asked, "How appropriate or inappropriate do you think it is to compare yourself with others who have MS?"

11. Contact with others with MS

Initially, respondents were asked, "How many people with MS do you know?" Recognizing that support group membership may substantially affect contact with similar others, those with MS
were asked 1) if they currently belong to such a group, and 2) if they attended one in the past. If respondents answered affirmatively to either of the above questions, they were asked to estimate how many meetings they had gone to. Finally, those who had attended support groups were asked, "In general, do you think the other group members have illnesses that are much less severe, a little less severe, about the same, a little more severe, or much more severe than yours?" Responses were marked on a five-point scale.

12. Health

Eight questions tapping health were asked. These included, a global rating ("In general, how would you rate your health?") , a temporal comparison question ("How has your physical health changed over the past year?") , a coping question ("Overall, how well do you think you are coping with MS"), and two relative questions ("Compared with other events that have happened in your life, how severe is your MS" and "Compared with others with MS, how severe do you feel your MS is?"). In addition, each respondent was asked if he or she had suffered any symptoms of MS (weakness, vision or co-ordination problems, etc.) in the past year? Affirmative responses were followed by two questions: 1) "How many episodes of symptoms have you had?" and 2) "How serious were the episodes overall?" The latter question was asked on a four-point scale ranging from not at all serious to very serious.

13. Trajectory

Three questions regarding respondents' perceptions of the
the course of illness were included on nine-point scales: 1) "In the future, how do you think your capacity to accomplish tasks will change, if at all?" (ranging from get a lot worse to get a lot better), 2) "Relative to how you are coping right now, how well do you think you will cope in the future?" (ranging from much worse to much better), and 3) "How likely do you think it is that your symptoms will get worse or recur?" (ranging from not at all likely to extremely likely). Inter-item correlations for the three items ranged between .32 and .59.

14. Personal control

Three questions regarding perceived self-control, presented on nine-point scales (ranging from absolutely no control to extreme amount of control), were adapted from Affleck et al. (1987b). Each of the questions began, "How much personal control do you" and were followed by 1) "think you have over your daily symptoms, that is the amount of pain, fatigue, discomfort, and immobility you experience from day to day," 2) "think you have over the medical care and treatment of your illness," and 3) "believe you have over the long-term course of your underlying disease, that is, whether it will improve or at least not worsen in the future?" Because item two is conceptually different from the other two items, it was not included in the composite of perceived personal control. The inter-item correlation for the remaining two items was .58.

15. Demographics

Each participant was asked questions regarding education,
combined family income, gender, marital status, age, and employment.
IV. Results

A. Analyses by Group

1. Demographic variables

ANOVA's were performed on combined family income and education. The groups were significantly different on both of these measures, $F(2, 137) = 5.36, p < .01$ and $F(2, 139) = 5.03, p < .01$, respectively. Respondents in groups one, two, and three had mean combined family incomes of $37,500, 37,500$, and $25,000$. The average education for the corresponding groups was 12.87, 13.17, and 11.68 years. Tukey's HSD revealed that for both of these demographic variables, groups one and two were significantly higher than group three, but not different from one another. The reduced income in group three may be, at least in part, accounted for by the fact that respondents in that group were less likely to be employed than those in the other two groups (32%, 33%, and 12%, for groups one, two, and three, respectively), $X^2(2, N = 143) = 6.13, p < .05$, presumably due to their decreased mobility. The educational difference is less easily explained. MS is a disease that usually is diagnosed after completion of high school, but not necessarily university, for many people. Perhaps the difference between groups is due to the fact that many of those who were diagnosed with MS who intended to complete or return to school were unable to do so because of their symptoms.

Consistent with the gender composition of the disease in the general population (Scheinberg, 1983), the present sample was 75%
female and 25% male. No differences were found across group on gender. In addition, 13% were single, 6% separated, 6% divorced, 69% married, and 6% widowed. Aside from a greater proportion of respondents in groups two (6%) and three (12%) who were widowed than those in group one (0%), \(X^2(2, N = 142) = 6.52, p < .05\), no differences were found for any of the other marital status categories.

Because the three groups were selected according to year of diagnosis, it makes sense that respondents varied according to age (Ms were 42, 46, and 52 years old for groups one, two, and three, respectively), \(F(2, 125)=8.08, p<.001\). However, unexpectedly, follow-up Tukey's HSD revealed that, although groups one and three differed, one and two did not. One possibility for the results may be due to the fact that those who have more serious disabilities are diagnosed later in life.

2. Age, education, and income confounds

Because the three groups differed on income, age, and education, correlations between these variables and all of the other items and scales were calculated. An examination of these correlations indicated that, with the exception of significant associations between the three potentially confounding variables and the psychological adjustment variables, and functional status, the correlations were all either modest or non-existent. Moreover, partialling out the effects of income, age, and education had no significant impact upon the group difference analyses of optimism, self-esteem, and functional status, and
only slightly modified the analysis of depression across groups. Thus, ANOVA's rather than ANCOVA's are reported below for all of the group differences analyses.

3. Standardized measures

Reliability coefficients (Cronbach's alphas) were computed for each of the standardized scales and were .84, .86, and .89 for optimism, self-esteem, and depression, respectively. The three scales were significantly related to one another. Optimism correlated .61, and -.44 with self-esteem and depression, respectively (both rs < .001). Self-esteem and depression (r = - .38, p < .001) were also associated. The moderately high correlations between the variables suggest that they are related, yet conceptually distinct.

Overall, there were no differences between groups on dispositional optimism, as measured by the Life Orientation Test, F (2, 134) = 1.31, ns., or self-esteem, F (2, 135) = 2.46, ns. The three groups varied according to depression F (2, 113) = 3.44, p < .05. Tukey's HSD revealed that overall only group two (M = 9.45) was less depressed than group three (M = 14.65), although the mean for group one (M = 13.62) was only slightly lower than that of group three. The items in which differences were found beyond the .05 level of significance were "I felt depressed," "I felt that everything I did was an effort," "I thought my life had been a failure," "I felt fearful," and "I had crying spells." Presumably, depression differences across groups reflect the way in which the disease is perceived. Respondents
in group one are orienting to the disease and are likely fearful about its course, and reflecting upon adjustments that need to be made due to the uncertainty associated with MS. In contrast, those in group three know what to expect and are more experienced with the symptoms, yet have an overall increased level of negative affect, presumably due to reduced capacity to function relative to respondents in group two.

4. Significant life experiences

If differences are found between groups on various measures, one explanation might be that they are a result of differential life experiences, and not the illness per se. For example, respondents in group three, because of their limited physical capacity, may be more likely to have lost their jobs or been laid off. If group three respondents experience more negative affect and less positive affect than participants in the other two groups, it may be because of the loss of an important career, or source of social contact with others. To test for such a hypothesis, ten possible stressful life events were investigated. The groups had comparable responses on the following items: become (re)married, lost a spouse through death, lost your job or been laid off, had a serious personal injury (excluding MS symptoms), retired, had a decline in financial status, become divorced, become separated, and had a spouse lost their job or get laid off (all \( X^2 \) values were ns.). In fact, the only item in which group differences were found pertained to someone in the immediate family having a serious personal injury or illness,
\( \chi^2(2, \ N = 142) = 8.38, \ p < .05 \). Nineteen, 43%, and 41% in groups one, two, and three, respectively, endorsed the latter item. If a Bonferroni alpha is employed to adjust for the number of tests conducted (.05 / 10 = .005), all ten items are nonsignificant. Therefore, the competing explanation of significant life experiences cannot account for differences between groups.

5. Frequencies of upward comparisons

Differences were found between the three groups regarding the amount of comparisons with others who are better off with respect to disease-related issues, \( F (2, 140) = 5.32, \ p < .01 \). Follow-up Tukey's HSD revealed that those in group three made more upward comparisons than the other two groups, which were not significantly different from one another (Ms were 2.89, 2.52, and 3.98, for groups one, two, and three, respectively). The three groups made similar responses when answering questions regarding upward comparisons regarding ability to cope with MS and its consequences, \( F (2, 140) = 1.80, \ ns. \), and level of support provided by friends and family, \( F (2, 140) = 1.28, \ ns. \).

6. Frequencies of downward comparisons

There were no group differences for frequency of downward comparisons on the items pertaining to disease-related issues, ability to cope, or level of support.

7. Affective consequences

In addition to the types of comparisons made, analyses were conducted according to feelings produced after comparing with others. There was a tendency for respondents in groups one (\( M = \)
19.16) and three ($M = 19.35$) to feel good as a result of making comparisons more often than those in group two ($M = 15.72$), $F(2, 136) = 2.71, p = .07$. This finding was entirely due to the upward comparison questions ($F(2, 137) = 5.00, p < .01$), since no difference was found for the downward comparison questions ($F(2, 137) = .37, ns.$). Presumably, those in groups one and three have more of a need to feel better after upwardly comparing, because they are either just recently coping with the illness or are physically disabled. Overall, there were no significant differences between groups regarding feeling bad subsequent to comparing with others, $F(2, 137) = 1.94, ns.$). However, when broken down according to comparison type, there was a trend consistent with the feeling good composite. Thus, for the upward comparison questions ($F(2, 138) = 2.81, p = .06$), respondents in group three ($M = 5.22$) reported the highest affect, followed by one ($M = 4.64$) and two ($M = 3.53$). No difference was found for the downward comparison questions ($F(2, 137) = .68, ns.$). In sum, the overall pattern of results revealed that those in groups one and three reported feeling better and somewhat worse more often as a result of making upward comparisons than those in group two. There were no group differences for any of the downward comparison questions.

8. Contact with others with MS

There were no differences between groups in terms of the number of persons with MS that respondents knew, $F(2, 128) = .42, ns.$ Thus, group differences reported above cannot be related to perceived differential contact.
Overall, 37% of respondents belonged to a support group at the time the questionnaire was completed, and an additional 11% had attended a support group in the past. There were no differences between groups on either of these measures. There was a nonsignificant trend for the number of support group meetings attended, when analyses were conducted by group, \( F(2, 64) = 2.78, p = .07 \). The means were 9.24, 26.10, and 15.00 for groups one, two, and three, respectively. Presumably, those who have been recently diagnosed have not had as much opportunity to attend these groups.

Group differences emerged on the question asking respondents who had attended support groups how severe they thought other group members' illnesses were, relative to their own, \( F(2, 66) = 3.90, p < .05 \). As expected, the ordering of means conforms to actual illness status. Although people in groups one (\( M = 3.92 \)) and two (\( M = 4.00 \)) were similar in reporting that other group members are approximately "a little more severe" than themselves, only group two and group three (\( M = 3.08 \)) were significantly different. Those in group three reported that other group members were "about the same" as oneself in terms of illness severity.

9. Physical health

Interestingly, when asked "In general, how would you rate your health?" there were no differences between groups, \( F(2, 138) = .76, ns \). (\( Ms \) were 6.31, 6.19, and 5.83 for groups one, two, and three, respectively). The similarity across groups is
surprising given that respondents in group three were chosen specifically because of their poor functional status and some were largely or entirely dependent upon others for their care. When asked comparative questions, however, group differences emerged. To the question, "Compared with other events that have happened in your life, how severe is your MS?" participants in groups one (M = 6.25) and three (M = 6.55) were more likely to admit that their MS was quite severe, relative to those in group two (M = 5.06), F (2, 138) = 5.61, p < .005. Interestingly, group one respondents were not significantly different from group three respondents, presumably due to group one's more recent diagnosis. When asked on the same five-point scale, "Compared with others with MS, how severe do you feel your MS is?" respondents in groups one (M = 2.25) and two (M = 1.95) were less likely to admit their MS was more severe than respondents in group three (M = 2.88), F (2, 133) = 8.38, p < .001. However, even respondents in group three reported on the favorable side of the mid-point.

Overall, 92% answered affirmatively to a question asking if they had had any symptoms of MS (weakness, vision or coordination problems, etc.) in the past year. The lack of differences across groups, X² (2, N = 143) = 2.37, ns., indicates the pervasiveness of symptoms experienced by all people with MS. There were group differences, however, in terms of the perceived seriousness of the episodes, F (2, 125) = 8.03, p < .001. Tukey's HSD indicated that respondents from group three (M =
2.63) reported more serious episodes than those from group two (M = 1.89). Group one (M = 2.27) did not differ from either of the other groups.

10. Trajectory

Interestingly, participants in the three groups regarded their future similarly. There were no differences regarding perceived capacity to accomplish tasks, ability to cope with MS, or viewing the symptoms as getting worse or recurring in the future (all ps > .20).

11. Personal psychological control

Perceptions of personal control over daily symptoms varied across groups, F (2, 138) = 5.47, p < .005. Those in group three (M = 5.03) perceived less control than those in group one (M = 6.28) or two (M = 6.28). Control over the medical care and treatment, F (2, 139) = .71, ns., and long-term course of the disease, F (2, 139) = 1.20, ns., was similar in the three groups, reflecting the limited knowledge about MS and how to deal effectively with it.

B. Overall sample analyses

1. Comparisons correlated with optimism, self-esteem, and depression

A series of analyses were calculated to determine whether or not those with MS varying in terms of optimism, self-esteem, and depression also differed on making various types of upward and downward comparisons and their affective consequences. The analyses were conducted in two ways. First, simple correlations
were calculated (e.g., self-esteem and upward comparisons) and, second, partial correlations were calculated, controlling for the effects of the other two scales (e.g., controlling for depression and optimism). The patterns of correlations were identical for both self-esteem and depression, either holding the other two scales constant or not. The results for optimism changed after partiailling out the effects of self-esteem and depression.

Specifically, both self-esteem ($r = -.34$, partial $r = -.21$, both $p_s < .01$) and depression ($r = .27$, partial $r = .15$, both $p_s < .05$) were significantly related with making upward comparisons. After partiailling out the effects of self-esteem and depression, optimism was unrelated to making upward comparisons. Interestingly, none of the three scales were correlated with making downward comparisons.

As noted earlier, Buunk et al. (1989) found that those high on self-esteem reported feeling worse after making comparisons less often than those low on self-esteem. No differences were found for feeling better. The same relationship between affective consequences and self-esteem was expected in the present study. In addition, it was hypothesized that this relationship would generalize to depression. In support of these predictions, both self-esteem ($r = -.35$, partial $r = -.16$, both $p_s < .05$) and depression ($r = .39$, partial $r = .27$, both $p_s < .01$) were significantly correlated with feeling worse after making comparisons, mostly due to negative affective consequences after making upward comparisons. After controlling for the other
two scales, optimism was unrelated to feeling worse. As expected, optimism ($r = .22$, partial $r = .25$, both $ps < .01$) was significantly correlated with feeling better after making comparisons, also due mostly to upward comparisons. Self-esteem and depression were unrelated to positive affective consequences. Thus, self-esteem and depression are associated with making upward comparisons and with feeling worse after comparing, while optimism is related to feeling better after comparing.

As noted earlier, significant associations between comparisons and adjustment would be especially compelling if the relationships held when controlling for actual severity of illness (as measured by functional status) and contact with similar others. When each of these effects were partialled out, none of the analyses changed appreciably. Thus, the relationships are not dependent upon functional status or amount of contact with similar others.

2. Comparisons and trajectory

Buunk et al. (1989) reported that prognosis, an independent assessment of the future provided by physicians, was unassociated with affective consequences from making comparisons. The authors interpret their results in terms of the importance of subjective factors over objective ones, suggesting that a rating of the future provided by respondents may have distinguished between groups to a greater extent than physicians' ratings. In the present study, a subjective assessment of trajectory was used. Most of the composite scores were not significantly correlated
with the trajectory scale, including the upward comparisons composite \( r = -.09 \), downward comparisons composite \( r = .17 \), positive affective consequences composite \( r = .11 \), and negative affective consequences composite \( r = -.17 \). However, one significant correlation of note, which is in the predicted direction, is that those who view their future less optimistically were more likely to report negative affective consequences \( r = -.21, p < .01 \) after comparing with others who were worse off. In sum, viewing one's future positively is not correlated with making various types of comparisons, or positive affective consequences, but inversely associated with negative affective consequences from downward comparisons.

3. Comparisons and personal control

There were no significant correlations between perceived personal control and any of the comparisons scales. Consistent with the findings of Buunk et al. (1989), it was predicted that those lower on perceived personal control would be more likely to report feeling worse as a result of making comparisons with others. No differences were expected for feeling better as a result of making comparisons. Contrary to expectations, the correlation between perceived personal control and the negative affective consequences composite \( r = -.17 \) was not significant. As hypothesized, no association was found between perceived personal control and the positive affective consequences composite \( r = .18 \).
4. Correlations with functional status

Higher functional status scores indicate greater physical disability. A series of correlations were computed to test the notion that disease state affects important psychological variables. Corroborating this suggestion, increased physical capacity was associated with the perception that one is currently coping well with MS ($r = -.22, p < .01$) and the belief that one will cope better in the future relative to now ($r = -.21, p < .01$). The better one was doing physically, the more perceived personal control over daily symptoms ($r = -.30, p < .001$) and course of the illness ($r = -.28, p < .001$). Veridical perception of illness was indicated by the strong correlation between functional status and a rating about the severity of one's MS relative to others ($r = .64, p < .001$). Interestingly, a global rating of health was unassociated with degree of physical disability ($r = -.18$).

Based on downward comparison theory, it was predicted that functional status (an indicator of threat) would be correlated with self-esteem, depression, optimism, and downward comparisons. In support of these predictions, functional status was negatively related to self-esteem ($r = -.26, p < .001$) and positively associated with depression ($r = .22, p < .01$). However, functional status was unrelated to optimism ($r = 0.16$), downward comparisons ($r = -.09$), positive affective consequences ($r = -.01$), and negative affective consequences ($r = .09$). Functional status and upward comparisons ($r = .28, p < .001$) were
significantly associated, such that those with greater disability were more likely to compare with better off others.

5. Upward and downward comparisons

T-tests were performed to determine whether upward or downward comparisons were more frequent. Downward comparisons were more prevalent than upward comparisons for each of the three questions. People with MS compared themselves with others doing worse than themselves more often than those doing better regarding disease-related issues, \( t(142) = 6.39, p < .001 \), ability to cope with the condition and its consequences, \( t(142) = 6.60, p < .001 \), and level of support provided by friends and family, \( t(142) = 3.98, p < .001 \).

6. Contact with others

The more people with MS the respondent knew, the more likely he or she compared with better off others (\( r = .30, p < .001 \)), but not worse off others (\( r = .20 \)). Presumably, such upward comparisons were interpreted in a self-enhancing manner, since the more people with MS known by the participant, the more likely he or she was to feel better subsequent to comparing with them (\( r = .29, p < .001 \)). No relationship held for contact with others and negative affect produced from making comparisons (\( r = .11 \)). Participants who felt it was more appropriate to compare with others with MS also knew more of these people (\( r = .23, p < .01 \)).

7. Appropriateness of making comparisons

Respondents who felt it was more appropriate to compare with
others with MS made more downward comparisons ($r = .28, p < .001$) than their counterparts. However, perceived appropriateness was not associated with frequency of upward comparisons ($r = .10$). People who believed it was appropriate to compare with others with MS reported feeling better more often subsequent to doing so ($r = .36, p < .001$), especially in the case of comparing with worse off others ($r = .39, p < .001$). Negative affective consequences were uncorrelated with perceived appropriateness of comparing with others with MS ($r = .06$).

C. Affective consequences from making comparisons

1. Positive versus negative affective consequences

Four paired $t$-tests were conducted, keeping comparison target and physical condition versus coping dimensions constant. In other words, only the affective consequences were varied. Consistent with downward comparison theory, it was predicted that positive affect would be reported to a greater extent than negative affect subsequent to making downward comparisons. Empirical support for such a prediction is indicated by the fact that respondents mentioned feeling better ($M = 5.59$) to a greater extent than feeling worse ($M = 3.73$) after comparing in a downward direction in terms of physical condition, $t(140) = 7.17$, $p < .001$. The same results were found for coping, $t(139) = 5.51$, $p < .001$. The means were 4.30 and 2.71 for feeling better and feeling worse, respectively. However, in contrast to the original notion that upward comparisons are associated with negative affect, those with MS also reported feeling better ($M =$
4.08) more than worse (M = 2.31) subsequent to comparing with others better off, for physical condition, t(140) = 6.73, p < .001. Similarly, respondents reported feeling better (M = 3.95) more often than worse (M = 2.14) when comparing upward on the coping dimension, t (140) = 6.62, p <.001. The consistency of results suggests that, overall, people feel better more often than worse after comparing with others, regardless of the dimension (coping versus physical) or direction (upward or downward) with which comparisons are made.

2. Comparisons on the physical condition versus coping dimensions

An additional four paired t-tests were performed, holding comparison target and affective consequences constant. It was predicted that individuals with MS would be more likely to evoke negative affective reactions as a result of making comparisons related to physical condition than those related to coping, when comparing downward but not when comparing upward. The t-test for downward comparisons on the physical condition (M = 3.71) versus coping (M = 2.71) dimension was significant, t(139) = 5.60, p < .001. This, coupled with a nonsignificant t-test for upward comparisons, confirmed the hypothesis. Presumably, respondents who see others doing worse than themselves feel threatened because of the possibility that they, too, may deteriorate. Negative affect may be muted on the coping dimension because of the perception that one may exercise greater control with regard to how well one is adjusting, when compared with physical
condition. However, individuals also reported feeling better, that is, lucky and grateful they were not in worse shape themselves, more of the time when comparing downward on the physical condition, as compared to coping, dimension, $t(139) = 5.27, p < .001$. Apparently, both fear and comfort may be obtained by making comparisons with others who are physically worse off. To put it another way, downward comparisons were associated with more extreme affect on the physical condition than the coping dimension. There were no differences between the dimensions for upward comparisons resulting in positive affect.

3. Upward versus downward comparisons

Four paired $t$-tests were conducted, keeping affective consequences and the coping/physical condition dimensions constant. Only the direction of comparisons, upward versus downward, was varied. Respondents felt worse more often when comparing downward ($M = 3.73$) than upward ($M = 2.30$) on the physical condition dimension, $t(140) = 6.27, p < .001$, and the coping dimension, $t(139) = 3.11, p < .005$, ($Ms$ were 2.71 and 2.14 for downward and upward comparisons, respectively). Interestingly, individuals also reported feeling better when comparing downward ($M = 5.62$) than upward ($M = 4.10$) on the physical condition dimension, $t(139) = 5.33, p < .001$. No differences were found between upward ($M = 3.96$) and downward comparison ($M = 4.31$) groups for feeling better as a result of making comparisons on the coping dimension, $t(139) = 1.16, ns.$, although the means are consistent with the notion that downward
comparisons lead to more positive affect than upward comparisons on the coping dimension. Overall, downward comparisons were associated with more extreme affective consequences than upward comparisons on the physical condition dimension and somewhat more extreme affect on the coping dimension.

D. Gender differences

The overall sample was divided according to gender to determine if males and females differ according to the standardized scales and/or social comparison questions. No differences were found on optimism, $t(135) = .99$, ns., self-esteem, $t(136) = .36$, ns., or depression, $t(134) = .04$, ns. Moreover, males and females were equally likely to make upward comparisons, $t(141) = .53$, ns., and downward comparisons, $t(141) = 1.51$, ns. The only significant gender differences were detected on the downward comparison/physical dimension questions. Females ($M = 5.96$) were more likely than males ($M = 4.50$) to report feeling better as a result of making such comparisons, $t(139) = 2.68$, $p < .01$. Yet, females ($M = 4.10$) were also more likely to feel worse than males ($M = 2.69$) subsequent to comparing with others with MS who are physically worse off, $t(139) = 2.87$, $p < .005$. Thus, females report more extreme affect than males when comparing with more physically debilitated others.
V. Discussion

The results of the present study suggest a number of theoretical and empirical extensions for work in the area of social comparison. The purpose of this discussion is to highlight some of the important issues. First, even though many predictions from the downward comparison literature were supported, some were not. Thus, respondents in groups one and three were no more likely than those in group two to make downward comparisons, and participants in group three were more likely than those in groups one and two to make upward comparisons on disease-related issues. Second, corroborating past research (Buunk et al., 1989), upward and downward comparisons were not perceived as intrinsically affective, that is, respondents did not always report feeling bad subsequent to comparing upward and feeling good subsequent to comparing downward. In fact, participants were more likely to report positive than negative affective consequences from either type of comparison. Third, the affective consequences results of Buunk et al. (1989) were replicated and extended for self-esteem, and generalized to depression. Thus, self-esteem and depression were related to making upward comparisons and negative affective consequences, but not downward comparisons or positive affective consequences. In contrast, highly optimistic people felt better, but not worse, after making comparisons. Fourth, the need to highlight dimensions of comparison is indicated by the extremity of affective consequences from comparing with worse off others on
the physical condition, relative to the coping dimension; results are interpreted in terms of saliency, the impact of forced comparisons, perceived controllability of illness, and distortability of information. Fifth, as a whole, the findings suggest that people's downward comparisons are less situationally constrained and more flexible than upward comparisons. Sixth, positivity biases were detected, such that individuals favorably interpret their adjustment and extent of disability, and make more downward comparisons than upward comparisons. Seventh, the ambivalence of making downward comparisons is indicated by the fact that beliefs of appropriateness were related to downward, but not upward, comparisons. Eighth, barriers to social comparison should be considered, given that respondents report only a modest amount of comparisons and minimal affectivity associated with these comparisons. Before discussing these results, however, an examination of psychological functioning scores of the present sample relative to available norms is included, along with a brief overview of the social comparison function of support groups. A concluding comment regarding methodological considerations of MS research is presented.

A. Psychological functioning

Elevated depression scores have consistently been found in MS populations (Baretz & Stephenson, 1981; Whitlock & Siskind, 1980), and many view negative affect as the most common symptom of the disease (see VanderPlate, 1984, for a review). Respondents in groups one and three reported higher levels of
depression than those in group two, although only groups two and three were statistically different. Presumably, people in group one are depressed because of recently obtained knowledge they have a chronic, potentially debilitating disease. The transition from non-disabled to disabled status necessitates many unexpected adjustments, such as the inability to plan for the future, reduced career aspirations, shattered assumptions regarding beliefs of invulnerability, and uncertainty associated with the disease. Group three respondents, on the other hand, are also depressed, yet have different concerns. Because of their reduced physical capacity and realization of the limited availability and effectiveness of medical intervention, adjustments must be made regarding increased dependence and decreased mobility. Reduced sexual functioning (Barrett, 1984) and social contacts (Davis, 1973) may also be problems especially likely to occur among group three respondents.

Although there were group differences, one may reasonably ask if respondents in the present sample were more depressed than non-MS persons. To help answer this question, a comparison of depression scores in the present sample was made with three probability samples of households in Kansas City and Washington County, collapsed across gender (Radloff, 1977). The American national samples had average scores between 7.94 and 9.25, similar to scores reported by group two (M = 9.45) respondents in the present study. Group three had the highest mean score (M = 14.65), followed by group one (M = 13.62), thus indicating
slightly elevated depression scores compared with non-MS samples. However, relative to a sample of patients residing in a private psychiatric facility (M = 24.42; Radloff, 1977), average depression scores in the present study were considerably lower. Caution should be exercised in interpreting results of psychological functioning, because items on depression measures may be indicative of the disease itself, rather than its impact (Devins & Seland, 1987). For example, items on the CES-D such as "I had trouble keeping my mind on what I was doing" (in more advanced cases of MS), "I felt that everything I did was an effort," and "I could not get 'going,'" may reflect symptoms of the disease. In addition, because women tend to report higher depression scores than males (Radloff, 1975), and the present sample was predominantly female (75%), depression scores are likely to be artificially inflated when compared to a random sample of households. Therefore, considering factors that may artificially elevate depression scores, the present data provide no evidence of pathological levels of depression among people with MS.

Consistent with the findings for depression, optimism scores in the present sample across groups (Ms were 22.25, 21.13, and 20.44 for groups one, two, and three, respectively) were similar to scores obtained by undergraduate males (M = 21.03) and females (M = 21.41) (Scheier & Carver, 1985). In contrast to Walsh and Walsh (1987), who found that self-esteem scores were highest among people with MS with greatest physical capacity, in the
present study, groups one, two, and three were comparable in terms of self-esteem. With the exception of group differences according to depression, the overall pattern of results for the standardized psychological measures is consistent with the finding that duration of illness has limited effects on adjustment (Zeldow & Pavlou, 1984).

B. Social comparison function of support groups

Instead of maintaining contact with unafflicted peers who have little in common with themselves (especially if the disease is severe), the person with MS may join a support or self-help group or develop friendships with other people with MS. Apparently, the need to evaluate oneself against, or remain in contact with, others with MS is strong, as evidenced by the fact that fully one half of the present sample was either currently involved in a support group or had attended one in the past. One reason to join a support group may be the desire to see if there are similar others with which to share experiences and define the illness. Pavlou (1984) notes that, in recently-formed groups, members are relieved when explicit social comparisons with other members are made by the group leader, such as "I'll bet everyone has been looking around to see whose symptoms are mild and whose are more severe" (p. 341). Although comparisons may be helpful to assess the normality of one's reactions to the disease and expectations for the future, contact may sometimes result in negative emotions. For example, one person at a meeting said "When I walked in and saw two wheelchairs, I really got tense,
and I thought that seeing people who were worse really might hurt me" (p. 343). People with MS may react negatively to downward comparisons because of the belief that they may get worse themselves. Such a belief is supported by the finding that respondents with MS who were more worried about their future were also more likely to have negative affective consequences from comparing with others worse off than themselves.

C. Predictions based on downward comparison theory

Consistent with Wills's (1981) proposition that people confronted with threats to self-esteem will primarily compare with those worse off than themselves, downward comparisons were more prevalent than upward comparisons regarding disease-related issues, coping with MS and its consequences, and level of support provided by friends and family. These data corroborate Wood et al. (1985), who note that, of free-response comparisons, 95% for physical situation and 63% for coping ability were in the downward direction. However, not all of the evidence from the present study is consistent with previous findings in the downward comparison literature. As may be recalled, all of the preliminary evidence is consistent with the notion that downward comparisons are utilized early on after onset of a stressful life event (Affleck et al., 1987a; Schulz & Decker, 1985; Wood et al., 1985), presumably due to increased threat. As well, it has been suggested that those experiencing more symptoms will make more downward comparisons (Wills, 1981). If it is true that respondents in group three are more threatened than those in
group two by virtue of decreased physical capacity, and those in group one are more threatened than those in group two because of adjustments that must be made shortly after being diagnosed with MS, the present findings are inconsistent with those in the downward comparison literature. There were no differences between groups on downward comparisons, that is, more threatened individuals were no more likely to make downward comparisons than those less threatened. Moreover, participants in group three made more upward comparisons on disease-related issues than respondents in groups one and two.

How can these data be reconciled with previous findings? Although more threatened individuals may have a greater need to downwardly compare, they may also realize that there are more better off others with which to compare than those who are physically worse. The questions employed in the present study may have been more sensitive to this latter issue than questions used in past studies. A reformulation of downward comparison theory may be appropriate given these new data. The more threatened someone is, the more they may downwardly compare and the less they may upwardly compare, controlling for the number of possible upward comparison and downward comparison targets available to them.

D. Affective consequences from social comparisons

In agreement with downward comparison theory (Wills, 1981), the most commonly reported affective consequences were feeling good as a result of making downward comparisons on the physical
condition ($M = 5.90$) and coping ($M = 4.31$) dimensions. In the present study, and contrary to downward comparison theory, the next most commonly endorsed items were feeling better subsequent to comparing upward on the physical condition ($M = 4.08$) and coping ($M = 3.95$) dimensions. Thus, the most commonly endorsed items (upward and downward) were all associated with positive affect. Downward comparisons were not always self-enhancing, however, as indicated by highest negative affect on physical condition ($M = 3.73$), followed by negative affect from downward comparisons on the coping dimension ($M = 2.71$). Finally, the least endorsed items were feeling worse after comparing with better off others on the physical condition ($M = 2.30$) and coping ($M = 2.14$) dimensions. The ordering of means in the present study for the affective consequences items (collapsing across physical condition and coping dimensions) was exactly the same as that reported by Buunk et al. (1989), confirming the suggestion that upward and downward comparisons are not intrinsically affective. Depending upon whether one focuses on the good or bad aspects that a comparison provides, positive or negative affective consequences may prevail.

E. Comparisons, adjustment, trajectory, and perceived control

Buunk et al. (1989) reported that cancer patients with high self-esteem and perceived personal control were less likely to feel bad as a result of comparing with others. In the present study, the findings for self-esteem were replicated, although the
personal control results were not. This lack of a relationship with perceived control is perhaps due to the limited knowledge that is available regarding the treatment of MS and control over the symptoms and disease course. Clearly, more research is needed to address this question. In both studies, an assessment of the future was unrelated to affective consequences, with the interesting exception of the greater likelihood of feeling worse subsequent to making downward comparisons among those who viewed their future negatively in the present study. Buunk et al. (1989) had oncologists rate prognosis on a five-point scale (1=grave prognosis, 5=probable cure), while in the present study, subjective assessments of the future were provided by the respondents. Although other researchers should determine whether or not these results are robust, tentative findings from two different populations (cancer patients and people with MS), using different rating procedures, and different raters (oncologists versus patients) suggest that assessments of the future are unrelated to affective consequences from comparisons, except for feeling bad when comparing downward.

The present results extend those reported by Buunk et al. (1989) by demonstrating that, in addition to self-esteem, affective consequences were also related to depression and optimism. However, the results for optimism were different than those for self-esteem and depression. Specifically, while self-esteem and depression were significantly correlated with making upward comparisons and with negative affective consequences from
making comparisons, optimism was significantly related to feeling better after making comparisons. Because optimists are able to focus on the favorable aspects of information (Taylor & Brown, 1988), it makes sense that optimism is associated with positive affective consequences.

The results for self-esteem and depression may be interpreted in terms of the ability of some people to selectively filter out and avoid the negative implications of situations (Taylor & Brown, 1988). A substantial literature on depression indicates that people who are depressed are more likely to see both the positive and negative aspects, whereas non-depressed individuals are biased toward the positive (Kuiper et al., 1985; Ruehlman & West, 1985). The present findings suggest that such a rationale may be extended to include the personality dimension of self-esteem (cf. Buunk et al., 1989; Taylor & Brown, 1988).

F. Physical condition versus coping

The physical condition dimension was always endorsed with more extreme affect by respondents than the corresponding questions for the coping dimension, although only the downward comparison questions differed significantly from one another. Because physical condition is probably more salient than coping, one's physical status relative to others may be highlighted. Additionally, physical condition comparisons are forced upon a person to a greater extent than those related to coping and may, therefore, gain added affective potential. One may not feel as bad subsequent to comparing with another who is coping more
poorly than with another who is physically worse off, because of
the belief that coping is controllable to a greater extent than
physical condition (cf. Weiner et al., 1988).

Another explanation regarding more extreme affect associated
with downward comparisons on the physical condition dimension
relates to distortability of information. In other words,
because physical condition is observable, whereas coping is not,
there is a greater capacity in the latter case to alter
information. Thus, one may not have as strong negative affective
consequences from downwardly comparing on coping because of the
belief that distressed individuals are doing better than they
actually are. In support of such a suggestion, family and
friends of people who have committed suicide frequently state
that they did not realize the deceased was so depressed.

G. Flexibility of downward comparisons

The more people with MS respondents knew the more likely
they were to make upward, but not downward, comparisons.
Participants who had limited physical capacity were just as
likely to make downward comparisons as their better off
counterparts, even though the latter group has more potential
downward comparison targets available with which to compare.
Frequencies of upward comparisons were associated with self-
estime and depression; none of the standardized adjustment scales
were correlated with frequencies of downward comparisons.
Together, these findings suggest the flexibility of downward
comparisons, at least relative to upward comparisons, and are
consistent with the notion that upward comparisons are more
consstrained by the environment than downward comparisons. The
results also suggest that people may be creative in making
comparisons with worse off others. Taylor and her colleagues
(Taylor, 1983; Wood et al., 1985) have demonstrated that
respondents may manufacture hypothetical worse off others or
focus on dimensions in which one is advantaged. Such strategies
are far less commonly employed for upward comparisons, presumably
because psychological benefit may be more readily obtained by
downwardly comparing, at least for the goal of evaluation for the
purposes of self-enhancement (Taylor & Lobel, in press).

H. Positivity biases

Throughout the coping literature, it has been noted that
people who have experienced stressful life events are very
positive about their ability to adjust to their circumstances,
regardless of how undesirable they may be. People believe they
are coping better than others dealing with similar stressors
(Pearlin & Schooler, 1978). Such results have been found for
cancer patients (Taylor, Falke, Mazel, & Hilsberg, 1988), mothers
of high risk infants and arthritis patients (Affleck et al.,
1987a), and the bereaved (Lehman, Hemphill, Ellard, & Wortman,
1989). In the present study, respondents consistently
demonstrated favorable outlooks. For example, participants, even
those in group three, who were relatively severely disabled,
rated their health as six on a nine-point scale. On the same
nine-point scale, participants believed their mean coping level
was seven. When the corresponding positive and negative affective consequences items were compared, respondents felt better more often than worse after comparing. Finally, on average, respondents rated themselves as "somewhat less severe" than others with MS with regard to illness severity. Thus, on both absolute and comparative ratings, respondents were inclined to endorse favorable endpoints on the continuum.

I. Appropriateness of making comparisons

Although the benefits of comparing with others have been well-documented in the social comparison literature, there are also costs (Brickman & Bulman, 1977). Thus, Wills's (1981) ambivalence principle relates to the fact that comparing with worse off others makes one feel better, yet such comparisons are not regarded as socially appropriate. In line with this reasoning, respondents higher on perceived appropriateness of making comparisons reported a greater number of downward, but not upward, comparisons. Presumably, people who believe comparing with others is an important or useful way to gain information also are more likely to feel good as a result of comparing with those who are worse off. Precisely this pattern of results was found: respondents higher on perceived appropriateness were more likely to report positive affective consequences subsequent to comparing with worse off others, but not better off others. Although it also might be expected that perceived acceptability should be associated with reduced negative feelings (such as guilt) after making downward comparisons, no association between
negative affective consequences and beliefs of appropriateness was found.

J. Barriers to social comparison

The discussion of appropriateness of making comparisons raises a related issue. If social comparisons are useful in the coping process, why do respondents report on the "never" side of the midpoint on all but one of the fifteen social comparison items (the exception was the physical condition/downward comparison/feel better question)? Respondents in Buunk et al.'s (1989) cancer sample also reported affective consequences below the midpoint on two of the four items.

One possibility has to do with impediments to social comparison that people who have experienced negative life events are confronted with. Although people desire information regarding the appropriateness of reactions when experiencing negative emotions (Coates & Peterson, 1982), as in stressful situations, such conditions may make affiliation with others less likely (Taylor, Buunk, & Aspinwall, in press). In addition, because of the rarity of MS and lack of publicity regarding its effects, comparison targets may not be available or readily obtained. Because MS symptoms such as weakness, loss of sensation, and visual impairment are "invisible" in that they are not directly observable (Devins & Seland, 1987), even if a comparison target is located, accurate comparisons regarding disease state and immobility may be difficult to ascertain.

People experiencing negative life events may be unlikely to
share their thoughts and feelings with others, because of the devaluation of persons with illnesses and disabilities (Goffman, 1963). This tendency may be exacerbated among those with chronic illnesses, because they cannot retain their "normal" status (Brooks & Matson, 1982). Even among those who are experiencing a similar problem, exchange of information usually occurs in socially desirable ways (Taylor et al., in press). Thus, among MS support groups, it has been recognized that there is a tendency to be polite and helpful, and avoid confrontation (Pavlou, 1984). Talking about some issues may be considered taboo or lead to discomfort, so that discussions of neurologically based sexual difficulties are rare or dealt with in generalities, leading to a lack of information regarding the extent to which others suffer from the same problem.

K. Potentially important methodological considerations

There are a number of factors that should be considered when conducting psychological research with people with MS that, for practical reasons, could not be followed for the present study. To begin, the diagnosis may be uncertain, in part due to the lack of specific laboratory test to accurately identify the presence of the disease. Therefore, diagnoses should be considered possible, probable, or definite; to ensure that relevant persons are included as research participants, only those who are considered to have the disease with a high degree of certainty should be included (Brown, 1980). Also, because researchers have found that MS may result in impairment in neuropsychological
functioning (Heaton, Nelson, Thompson, Burks, & Franklin, 1985), especially in areas of short-term memory and abstract reasoning (Peyser, Edwards, Poser, & Filskov, 1980), minimizing such effects may be desirable. Possibilities include screening out patients who are especially impaired, and assessing cognitive deficits and statistically controlling for them (Devins & Seland, 1987).

Initially, recently diagnosed participants were defined as those who had been diagnosed less than one year ago. However, in order to obtain a large enough sample, all participants who had been diagnosed up to three years prior had to be selected from the MS Society's files. Therefore, the newly diagnosed group was not as recent as would have been hoped, although no study has been located where participants had been diagnosed less than one year ago.

Finally, one consideration of the disease that may differentially impact on psychological variables is disease activity. Whenever possible, respondents should be divided according to whether or not they have relapsing-remitting vs. chronic progressive forms of MS, as those with the latter type may be more depressed (McIvor, Riklan, & Reznikoff, 1984), have greater emotional disturbance (Dalos, Rabins, Brooks, & O'Donnell, 1983), and neuropsychological impairment in cognitive, sensory, and motor domains (Heaton et al., 1985). Related to this, respondents should be differentiated according to whether or not they are currently experiencing an exacerbation, and an
assessment of its severity should be made, because relapse is accompanied by a different clinical picture than when the illness is in remission (Devins & Seland, 1987).
While the literature generally supports these findings, there are special circumstances in which dissimilar others may be chosen in the absence of threat. Thus, Wheeler et al. (1969) found that when subjects were unaware of the range of scores, they preferred to obtain anchor points by learning the marks of those who scored highest and lowest. In a similar vein, Mettee and Smith (1977) propose that dissimilar others may reduce uncertainty better than similar others and, sometimes, provide less negative affective potency. Moreover, dissimilar others are sources of important self-evaluative information in that they help determine what one is not, as well as provide information about what one is from a different perspective. Confidence in certain judgments may be enhanced when shared by a dissimilar other, since various biases are not present (Goethals & Nelson, 1973). Under circumstances in which individuals are convinced about the correctness of their opinions, those with opposing beliefs may be sought in an attempt to bolster one's worth (Gordon, 1966). Although individuals may often compare with similar others, a substantial literature argues that people strive to maintain a sense of distinctiveness (McGuire & McGuire, 1981; Tesser, 1980), although this may not occur on all dimensions (Campbell, 1986; Marks, 1984).

Time-frame should be regarded as a quasi-experimental variable rather than a true independent variable because it is not
manipulated. While control is lacking with such a procedure, there are no subject self-selection problems because respondents have not chosen which group they are going to be in (that is, time elapsed since diagnosis is not a factor that respondents may willfully choose). More subtle forms of self-selection may be a problem, though, since only those who fill out the questionnaires and mail them back will be included in the data analysis.

Because a number of correlations were calculated for the overall sample analyses, a conservative alpha ($p < .01$) was used before rejecting the null hypothesis, unless otherwise indicated.
References


Appendix A

#1. I am able to walk. My activity level is not affected.

#2. I am able to walk. My activity level is minimally affected: slight weakness and/or mild sensory and/or visual disturbances.

#3. I am able to walk. My activity level is moderately affected: weakness, co-ordination and/or balance disturbances.

#4. I am able to walk. My activity level is more noticeably affected: increased weakness co-ordination and/or balance disturbance. I am self-sufficient and able to be up and about for some 12 hours a day.

#5. I am able to walk. My activity level is relatively severely affected. I require special provisions (part-time work/rest periods) in order to manage a full day of work/activity.

#6. I require a walking aid for mobility: ___cane, ___walker, ___forearm crutches, ___leg brace.

#7. I require a wheelchair for mobility: ___manual, ___electric, ___scooter, I am able to transfer independently (enter and leave the wheelchair on my own).

#8. I require partial bed rest. I require a wheelchair for mobility: ___manual, ___electric. I am able to operate the wheelchair independently (effective use of arms). I require partial assistance with transfers: ___human, ___mechanical (grab bars/transfer board).

#9. I am totally dependent upon others for all my care needs (bathing, toileting, eating, dressing, transferring, etc.). I am able to operate an electric wheelchair with an adaptive device (i.e., sip and puff, chin or head control mechanism).
Multiple Sclerosis Questionnaire

For each question, please answer in the appropriate space, or circle the desired response. Please answer questions in the order they appear in the booklet. If you make an error and wish to mark an alternative answer for a question, cross out the undesired response and clearly mark the appropriate choice. There are no right or wrong answers; we are only interested in your honest opinions. Some questions may appear very similar, so it is important for you to read the questions very carefully before answering them.

We realize people with MS have symptoms that vary across time. Please answer the questions in this booklet according to how you are feeling right now, unless otherwise indicated. Also, please note that the questionnaire is printed on both sides of each page.

Thank you very much for your participation!
LOT

Please read the items below and indicate the extent to which you agree with each of them, using the following response format:

1  STRONGLY DISAGREE
2  DISAGREE
3  NEUTRAL
4  AGREE
5  STRONGLY AGREE

Try to be as accurate and honest as you can when answering the questions. Try not to let your answer to one question influence your answers to other questions.

____ 1. In uncertain times, I usually expect the best.
____ 2. It's easy for me to relax.
____ 3. If something can go wrong for me, it will.
____ 4. I always look on the bright side of things.
____ 5. I'm always optimistic about my future.
____ 6. I enjoy my friends a lot.
____ 7. It's important for me to keep busy.
____ 8. I hardly ever expect things to go my way.
____ 9. Things never work out the way I want them to.
____10. I don't get upset too easily.
____11. I'm a believer in the idea that "every cloud has a silver lining."
____12. I rarely count on good things happening to me.
Please read the items below and indicate the extent to which you agree with each of them, using the following response format:

1  STRONGLY DISAGREE
2  DISAGREE
3  AGREE
4  STRONGLY AGREE

Again, try to be as accurate and honest as you can when answering the questions. Try not to let your answer to one question influence your answers to other questions.

1. I feel that I'm a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.
CES-D

Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the past week.

1. RARELY OR NONE OF THE TIME (Less than 1 Day).
2. SOME OR A LITTLE OF THE TIME (1-2 Days).
3. OCCASIONALLY OR A MODERATE AMOUNT OF TIME (3-4 Days).
4. ALMOST ALL OF THE TIME (5-7 Days).

During the past week:

1. I was bothered by things that usually don’t bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get "going."
Life Events

Below is a list of events that can happen to people. Since the time you have been diagnosed with MS, please indicate whether any of these things has happened to you by ticking the appropriate space:

<table>
<thead>
<tr>
<th>No, has not happened or inappropriate</th>
<th>Yes, has happened</th>
<th>If yes, what was the month and year during which that happened?</th>
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<tbody>
<tr>
<td>1.) Become (re)married?</td>
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<td>2.) Lost a spouse through death?</td>
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<td>3.) Lost your job or been laid off?</td>
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<td>4.) Had a serious personal injury (excluding MS symptoms)?</td>
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<td>5.) Retired?</td>
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<td>6.) Had a decline in your financial status?</td>
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<td>7.) Been divorced?</td>
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<td>8.) Become separated?</td>
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<tr>
<td>9.) Had a spouse lose their job or get laid off?</td>
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<tr>
<td>10.) Someone in your immediate family had a serious personal injury or illness?</td>
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In the following three sets of questions, we will ask you how you see yourself relative to others. For example, you might want to know how much alike or different you are from other people who have MS. Please try to remember any instances, if any, when you have compared yourself with others in answering the following questions.

**Upward Comparisons**

A1.) How often have you compared yourself to other people with MS who are better off than yourself with respect to level of disability, prognosis, or other disease-related issues?

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<td>NEVER</td>
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A2.) How often have you compared yourself to other people with MS who are better off than yourself with respect to ability to cope with the condition and its consequences?

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A3.) How often have you compared yourself to other people with MS who are better off than yourself with respect to the level of support provided by friends and family?

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**Downward Comparisons**

B1.) How often have you compared yourself to other people with MS who are worse off than yourself with respect to level of disability, prognosis, or other disease-related issues?

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B2.) How often have you compared yourself to other people with MS who are worse off than yourself with respect to ability to cope with the condition and its consequences?

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</table>
B3.) How often have you compared yourself to other people with MS who are worse off than yourself with respect to the level of support provided by friends and family?

1  2  3  4  5  6  7  8  9
NEVER  ALMOST  ALWAYS

Other Comparisons Questions

C1.) How often have you compared yourself to people with other illnesses or disabilities (e.g., heart attacks, cancer, strokes, diabetes)?

1  2  3  4  5  6  7  8  9
NEVER  ALMOST  ALWAYS

C2.) How often have you compared yourself to people your age who do not have MS or any other illness or disability?

1  2  3  4  5  6  7  8  9
NEVER  ALMOST  ALWAYS

Feelings From Comparisons

Please note that the next eight questions will appear very similar. However, when you read them closely you will realize they are each asking something different. Some of the questions pertain to physical condition, that is, the seriousness of your symptoms; others pertain to coping, that is, how well you are dealing with your MS. Please read each question carefully so the distinctions become apparent.

D1.) Some people say that seeing others with MS who are doing better than they are with respect to their physical condition makes them feel worse, that is, frustrated or depressed they are not in better shape themselves. How often have you had thoughts that are similar to these?

1  2  3  4  5  6  7  8  9
NEVER  ALMOST  ALWAYS

D2.) Then again, some people say that seeing others with MS who are doing better than they are with respect to their physical condition makes them feel better, that is, inspired or comforted. How often have you had thoughts that are similar to these?

1  2  3  4  5  6  7  8  9
NEVER  ALMOST  ALWAYS
D3.) Some people say that seeing others with MS who are coping better than they are makes them feel worse, that is, frustrated or depressed they are not in better shape themselves. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS

D4.) Then again, some people say that seeing others with MS who are coping better than they are makes them feel better, that is, inspired or comforted. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS

D5.) Some people say that seeing others with MS who are worse off than they are with respect to their physical condition makes them feel better, that is, lucky and grateful they are not in worse shape themselves. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS

D6.) Then again, some people say that seeing others with MS who are worse off than they are with respect to their physical condition makes them feel worse, that is, increases their fears and anxieties about getting worse themselves. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS

D7.) Some people say that seeing others with MS who are coping less effectively than they are makes them feel better, that is, lucky and grateful they are coping as well as they are. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS

D8.) Then again, some people say that seeing others with MS who are coping less effectively than they are makes them feel worse, that is, increases their fears and anxieties about getting worse themselves. How often have you had thoughts that are similar to these?

1 2 3 4 5 6 7 8 9
NEVER  ALMOST  ALWAYS
Appropriateness of Making Comparisons

E1.) Some people don't feel it is right to compare themselves with others and try to avoid doing so. In contrast, some people feel comparing with others is useful to gain information. How appropriate or inappropriate do you think it is to compare yourself with others who have MS?

1 2 3 4 5 6 7 8 9

NOT AT ALL APPROPRIATE

COMPLETELY APPROPRIATE

E1a.) Please briefly explain why you feel the way you do about comparing yourself with others:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Contact with Others with MS

F1.) How many people with MS do you know? __________

F2.) Do you currently belong to a support group?

____ NO

____ YES

F3.) Have you attended a support group in the past?

____ NO

____ YES

F4.) If you have attended a support group, about how many meetings have you gone to?

________

F5.) If you have attended a support group, in general do you think the other group members have illnesses that are much less severe, a little less severe, about the same, a little more severe, or much more severe than yours?

1 2 3 4 5

MUCH A LITTLE ABOUT A LITTLE MUCH

LESS LESS THE MORE MORE

SEVERE SEVERE SAME SEVERE SEVERE
Health

G1.) In general, how would you rate your health?

1 2 3 4 5 6 7 8 9
POOR EXCELLENT

G2.) How has your physical health changed over the past year?

1 2 3 4 5
IT HAS GOTTEN A IT HAS GOTTEN A IT HAS
GOTTEN MUCH LITTLE ABOUT LITTLE LOT
WORSE WORSE THE SAME BETTER BETTER

G3.) Overall, how well do you think you are coping with MS?

1 2 3 4 5 6 7 8 9
POORLY EXCELLENT

G4.) Compared with other events that have happened in your life, how severe is your MS?

1 2 3 4 5 6 7 8 9
NOT AT ALL SEVERE EXTREMELY SEVERE

G5.) Compared with others with MS, how severe do you feel your MS is?

1 2 3 4 5
MUCH LESS MUCH LESS
LESS SEVERE SEVERE

Future

H1.) In the future, how do you think your capacity to accomplish tasks will change, if at all?

1 2 3 4 5 6 7 8 9
GET A LOT WORSE STAY THE SAME GET A LOT BETTER

H2.) Relative to how you are coping right now, how well do you think you will cope in the future?

1 2 3 4 5 6 7 8 9
MUCH WORSE MUCH BETTER
H3.) How likely do you think it is that your symptoms will get worse or recur?

1 2 3 4 5 6 7 8 9
NOT AT ALL LIKELY EXTREMELY LIKELY

Control

I1.) How much personal control do you think you have over your daily symptoms, that is the amount of pain, fatigue, discomfort, and immobility you experience from day to day?

1 2 3 4 5 6 7 8 9
ABSOLUTELY NO CONTROL EXTREME AMOUNT OF CONTROL

I2.) How much personal control do you think you have over the medical care and treatment of your illness?

1 2 3 4 5 6 7 8 9
ABSOLUTELY NO CONTROL EXTREME AMOUNT OF CONTROL

I3.) How much personal control do you believe you have over the long-term course of your underlying disease, that is, whether it will improve or at least not worsen in the future?

1 2 3 4 5 6 7 8 9
ABSOLUTELY NO CONTROL EXTREME AMOUNT OF CONTROL

Education

J1.) What is the highest grade of school or year of college you have completed?

GRADES OF SCHOOL COLLEGE
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17+

Income

For statistical purposes only, we would like to get an idea about the financial situation of our participants. K1.) Please check the one amount that best represents the combined income of all members of your family living in your residence in 1988 before taxes.

___ LESS THAN $5,000
___ $5,000-$14,999
___ $15,000-$24,999
___ $25,000-$34,999
___ $35,000-$44,999
___ $45,000-$54,999
___ $55,000-$64,999
___ $65,000-$74,999
___ MORE THAN $75,000
**Support**

L1.) Overall, how supported do you feel by your family members and friends?

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L2.) What things, if any, do you wish family members or friends would do to be supportive that they are currently not doing? Please list as many thoughts that come to mind.

________________________________________

________________________________________

________________________________________

________________________________________

L3.) In the time since your diagnosis, what things have others said or done that have been especially helpful to you in coping with your MS?

________________________________________

________________________________________

________________________________________

________________________________________

L4.) Sometimes, in trying to help, people may say or do things that are not in fact helpful. In the time since your diagnosis, what things have others said or done that have not been helpful, or that have upset you, made you angry, or offended you?

________________________________________

________________________________________

________________________________________

________________________________________

L5.) Why do you think others said or did the unhelpful things in question L4? In other words, what do you think caused them to act the way they did?

________________________________________

________________________________________

________________________________________

________________________________________
Questionnaire Completion

M1. Did you complete this questionnaire by yourself, or did someone else fill in the answers as you dictated responses?

___ I completed the questionnaire by myself.

___ Someone else filled in the answers as I dictated responses.

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!