The Effects of Identification with a Support Group on the Mental Health of People with

Multiple Sclerosis

Juliet R. H. Wakefield (PhD.), Fabio Sani (PhD.), and Sarah Bickley (BSc. Hons.)

University of Dundee, Scotland

Correspondence/Reprints: Juliet R. H. Wakefield, School of Psychology, University of

Dundee, Dundee DD1 4HN, UK. Email: j.r.h.wakefield@dundee.ac.uk. Phone: +44 1382

384853. Fax: +44 1382 229993.

Word-count (Excluding Title Page, References and Tables): 3986.

Abstract

Objective: Multiple Sclerosis (MS) is associated with various psychological problems, including depression and anxiety. Whilst MS support groups are intended to improve mental health, this goal is not always achieved. Taking a social identity approach, we hypothesise that it is the level of subjective identification with a support group (rather than simply support group membership per se) that positively affects the mental health of people with MS. *Methods*: 152 individuals with MS were recruited via UK MS support groups and completed a questionnaire. This included measures of support group identification, depression, anxiety and satisfaction with life, as well as control variables (education level and age). *Results*: Analyses revealed that, as hypothesised, support group identification was significantly linked to depression, anxiety and satisfaction with life. Moreover, group identification explained a significant amount of variance in addition to that explained by education and age on each health outcome. Repeating the analysis to compare each of the three main sub-types of MS revealed these effects to be present for individuals with Relapsing-Remitting (RR) and Primary Progressive (PP) MS, but not for those with Secondary Progressive (SP) MS. *Conclusions*: We suggest that identifying highly with an MS support group has important positive outcomes for MS patients' mental health. This has implications for practicing clinicians: people with MS (particularly RRMS and PPMS) should be encouraged to engage with support groups, but more must be done to ensure they subjectively identify with these groups, rather than merely attend them.

Keywords: anxiety; depression; groups; multiple sclerosis; social identity; support groups.

Introduction

Multiple sclerosis (MS) is a chronic neurological disease involving demyelination of the nervous system [1]. There are three key MS sub-types, each exhibiting different progression patterns: Relapsing-Remitting (RR; periods of symptom remission interspersed with periods of relapse), Primary Progressive (PP; a slow and continual worsening of symptoms), and Secondary Progressive (SP; RRMS transitioning into a steadier worsening of symptoms) [2]. Around 80% of patients are diagnosed initially with RRMS, with onset usually in early adulthood, while around 20% of patients are diagnosed initially with PPMS, with onset usually in mid-adulthood [3]. Approximately 50% of RRMS patients transition into SPMS within 10 years, rising to 90% after 25 years [4]. SPMS patients experience progressive decline in baseline functioning, leading to increasing disability [2].

In addition to physical symptoms (fatigue, numbness, loss of bowel/bladder control, and blindness), MS patients may experience various psychological problems [5], the most common being depression. Lifetime prevalence of Major Depressive Disorder (MDD) following MS diagnosis is about 50% [6], and depression rates are higher for MS than for other chronic conditions [7]. MS patients are also more likely to experience anxiety than people without MS: lifetime prevalence of anxiety disorders in patients with MS is approximately 37% [8, 9]. These widespread psychological difficulties have inspired various therapeutic approaches. In particular, based on findings that social support has strongly positive associations with MS patients' mental health [10, 11, 12], researchers and practitioners have promoted support groups as a way to improve psychological well-being [13]. Contrary to expectations, however, support groups do not seem to improve MS patients' mental health. No consistent improvements in quality of life or depression scores were found in an eight-week MS peer-support programme [14]. Additionally, individual cognitive

behavioural therapy (CBT) and antidepressants were both found to be significantly more effective than group therapy at reducing depression among 63 MS patients [15]. Importantly, however, these studies fail to assess the extent to which patients subjectively identify with the support group itself.

Group identification – a concept derived from the social identity approach to group behaviour [16] – refers to one's sense of belonging to a group coupled with one's sense of commonality with other group members [16, 17]. The fact that greater group identification has been found to pave the way for more positive social relationships [16], and that in turn good social relationships positively affect mental health [18], has inspired the prediction that greater group identification is associated with improved mental health. This prediction has already found confirmation in various studies [19]. For instance, prison guards who experience greater identification with the group of prison guards report lower levels of psychiatric disturbance [20]. Meanwhile, lower levels of depressive symptoms have been found among people who identify highly with their social group (compared to those who identify less highly): a result found for both the family group and an army unit [21].

Consistent with these findings, our central hypothesis is that the positive effects of group identification on mental health should also be observed in MS support groups. To our knowledge, no work has investigated this possibility. Moreover, since the three key MS sub-types (RRMS, PPMS, and SPMS) involve quite different patterns of disease progression (and thus may produce differing experiences for patients) [2], a further aim was to investigate whether the size of the effects of support group identification on mental health might differ across MS sub-types.

Method

Participants and Procedure

Participants were recruited via UK MS support groups, and were required to possess a formal MS diagnosis and to have attended a support group in-person for three or more meetings.

A research summary was sent to group leaders, who disseminated this information to group members and informed us of those interested in participating. We posted these individuals a questionnaire, which took around 20 minutes to complete. Every questionnaire was returned. Participants signed an informed consent form before completing the questionnaire, and the study was approved by the University of Dundee Research Ethics Committee.

Questionnaire Measures

Group Identification

After participants indicated when and with what sub-type of MS they had been diagnosed, MS support group identification was assessed with a widely-used four-item global measure. Each item ended with "member/s of my support group": ("I see myself as a…"; "I am pleased to be a…"; "I feel strong ties with…"; "I identify with…") [22]. Some items relate to cognitive aspects of identification ("I see myself as…"), while others relate to affective ("I am pleased to be…") and evaluative aspects ("I identify with…"). Although this scale was used originally to assess identification with the 'psychology student' category, its global nature makes it suitable for use with many groups, including health-related groups [23]. Reliability for the scale is consistently high, with most studies reporting a Cronbach's α in the .70/.80s [24]. Participants rated each item on a 1 (strongly disagree) to 7 (strongly agree) scale. Each participant's overall score ranged from 1 to 7, and was calculated by obtaining the mean of their responses to the four items.

Mental health

To measure mental health, we used three different indicators. We assessed *depression* and *anxiety* using the Hospital Anxiety and Depression Scale (HADS) [25]. This instrument focusses exclusively on psychological symptoms whilst excluding the somatic symptoms (e.g., fatigue, insomnia) that depression may share with physical illnesses (including MS). The instrument is comprised of 14 items (each on a 0-3 scale) that assess depression (7 items; e.g., "I have lost interest in my appearance") and anxiety (7 items; e.g., "Worrying thoughts go through my mind"). Each participant obtained separate scores for anxiety and for depression, with scores ranging from 0 (very low severity) to 21 (very high severity).

We also assessed *Satisfaction with Life* (SWL) [26].This five-item scale of global cognitive judgment about one's life has already been used successfully with MS patients [27, 28]. Participants rated each statement ("In most ways my life is close to my ideal"; "The conditions of my life are excellent"; "I am satisfied with my life"; "So far I have gotten the important things I want from life"; "If I could live my life over, I would change almost nothing") using a 1 (strongly disagree) to 7 (strongly agree) scale. Each participant's overall score ranged from 1 to 7, and was calculated by obtaining the mean of their responses to the five items.

Control and Demographic Variables

Participants indicated their age and number of years of education (they could define 'education' however they wished). Since both variables may impact upon mental health, we used them as controls in our analyses. Participants also indicated their gender, number of siblings and number of children, relationship status (single; in a relationship; married; divorced; widowed) and job-type (retired/unemployed; semi-skilled; skilled trade; administration; manager/director/professional). These latter five variables were recorded for demographic purposes.

Analytic Procedure

Version 19 of SPSS (Statistical Package for the Social Sciences) was used for all analyses. All analyses are two-tailed.

Apart from obtaining descriptive statistics and Pearson Product Moment correlations, our key analysis was hierarchical regression. This was used in order to investigate the effect of support group identification on mental health. In each regression, we entered the two control variables (years of education and age) at Step 1, while support group identification was entered at Step 2. This enables an examination of the variance on mental health that support group identification may explain in addition to the variance explained by education and age.

Before this, we checked whether the data met the various assumptions required for regression analysis. For each of the three mental health measures (depression, anxiety and SWL), we found the Tolerance statistic to be >.20 and the Variance Inflation Factor to be <10, indicating absence of multicollinearity [29, 30]. Furthermore, the Durbin-Watson statistic was between 1 and 3, indicating independence of error [31]. We also plotted the standardized residuals, revealing that the data met the assumptions of normality, linearity and homoscedasticity. Finally, we investigated the existence of outliers (cases with standardized residuals more than two standard deviations from the mean). There were seven outliers in the depression analysis, three in the anxiety analysis, and two in the SWL analysis. Removing these outliers did not alter the pattern of the results described below. On the basis of these analyses, we decided that the data met the assumptions for regression analysis.

Additionally, we used a one-way independent analysis of variance with a Gabriel post-hoc comparison (selected because there were different numbers of participants in each group) [32] to compare the length of time for which participants with each MS sub-type had been diagnosed. Before this, we checked whether the data met the assumption of homogeneity of variance by carrying out Levene's Test of Equality of Error Variances. It was

non-significant, $F(2,137)=1.36$, $P=.26$, indicating that the data met the assumptions for analysis of variance.

To report effect sizes, we use Pearson's r (correlation) Cohen's f^2 (hierarchical regression) and η_p^2 (analysis of variance). Small, medium, and large effects are defined (respectively) as .01, .03, and .05 for Pearson's r, .02, .15, and .35 for Cohen's f^2, and .01, .06 and .014 for η_p^2 [33]. Nonetheless, Cohen described these cut-off points as a very general guide: small, medium and large are relative terms which are affected by the particular domain of study [33].

Results

Results Outline

Table 1 presents descriptive statistics for the whole sample and for each of the MS sub-types, while Table 2 presents inter-correlations between the key variables (and reliabilities where applicable). Table 3 presents the three hierarchical regression analyses for the whole sample, which investigate the effect of support group identification on each of the three mental health outcomes (depression, anxiety, and SWL). Tables 4, 5 and 6 repeat these analyses for each of the MS sub-types.

Participants

The sample consisted of 152 participants (56 males, 96 females). Participants were asked to indicate the sub-type of MS with which they had officially been diagnosed. Whilst this meant participants reported their own disease-course (which is not entirely ideal due to the controversies and complexities surrounding MS progression), the nature of the study meant it was not possible to obtain independent medical assessments for each participant. Based on participants' self-reported categorisation, the sample was composed of participants diagnosed with Relapsing-Remitting MS (RRMS; $n = 53$), Primary Progressive MS (PPMS; $n = 38$), Secondary Progressive MS (SPMS; $n = 55$) and Benign MS ($n = 4$; we excluded

Benign MS from our analyses of MS sub-types, as these individuals only constituted 2.63%

of the data). Two participants did not disclose their MS sub-type. Table 1 contains key socio-

demographic and clinical variables for the whole sample, as well as for each of the MS sub-

types.

(Table 1 about here)

Levels of Depression and Anxiety

In a review of the literature it was concluded that a score of 8 or above on either the

anxiety or depression sub-scale of the Hospital Anxiety and Depression Scale indicates

anxiety or depression, respectively [34]. Applying this criterion, 72 participants (47.37%) had

depression, while 111 (73.03%) had anxiety. Comparing MS sub-types, 27 participants with

RRMS (50.94%), 19 with PPMS (50.00%) and 26 with SPMS (47.27%) had depression.

Meanwhile, 41 participants with RRMS (77.36%), 25 with PPMS (65.79%) and 43 with

SPMS (78.18%) had anxiety.

Descriptive Statistics and Inter-correlations

The inter-correlations between the variables (and reliabilities where applicable) are

reported in Table 2. Reliabilities were good, with Cronbach's α ranging from .72 to .94.

Although Pearson's r only ranged from small to medium-sized [33], support group

identification was significantly negatively correlated with depression ($r = -.31$, $P < .001$) and

anxiety ($r = -.27$, $P = .001$), and significantly positively correlated with SWL ($r = .29$, $P <$

.001). Age was significantly negatively correlated with anxiety ($r = -.19$, $P = .02$), while

years of education did not correlate significantly with any measure.

(Table 2 About Here)

Demographic Variables

The only demographic variable which correlated significantly with support group identification was gender ($r = .34$, $P < .001$), indicating that women identified more with their support groups than men.

Regression Analyses

We performed three hierarchical multiple regressions, each involving a different mental health indicator (depression, anxiety, or SWL) as the outcome. Table 3 reports the results.

(Table 3 About Here)

As predicted, in Step 2 support group identification was significantly linked to all three health outcomes; standardized regression coefficients (betas) were -.31, -.30, and .31, respectively (Ps < .001) when depression, anxiety and SWL were used as outcomes. Among the control variables at Step 2, age had a significant negative effect on anxiety (beta = -.19, P = .03). Years of education had no significant effects. Group identification explained a significant amount of variance in addition to the variance explained by education and age on each health outcome. The effect size was .10 for each analysis, which is approaching medium-sized [33].

Sub-Types of MS

Exploratory Analyses

We then compared the key sub-types of MS: RRMS ($n = 53$), PPMS ($n = 38$) and SPMS ($n = 55$). A main effect (with a medium-to-large effect size) [34] of MS sub-type on MS duration was observed; $F(2,137)=10.05$, $P <.001$, $\eta_p^2=.13$. Participants with SPMS had

been diagnosed for significantly longer (M = 17.84 years, SD = 9.85) than participants with

RRMS (M = 9.92 years, SD = 8.42; P < .001) or PPMS (M = 11.84 years, SD = 9.49; P =

.02). This was as expected, since RRMS generally transitions into SPMS [2]. There were no

significant differences between sub-groups in terms of depression, anxiety, SWL or support

group identification (Ps > .50).

Regression Analyses

To compare the effects of support group identification for people with different sub-

types of MS, we repeated the three regression analyses separately for participants with RRMS

(n = 53), PPMS (n = 38) and SPMS (n = 55). Tables 4, 5 and 6 report the results.

(Tables 4, 5 and 6 About Here)

Relapsing-Remitting and Primary Progressive. For participants with RRMS and

PPMS, support group identification was a significantly linked to all three health outcomes at

Step 2 of the regressions; betas were -.32, -.34, and .37 respectively for RRMS, and -.55, -.54,

and .51 respectively for PPMS, when depression, anxiety and SWL were used as outcomes

(Ps = .03, .02 and .01 respectively for RRMA, and Ps = < .001, < .001 and .01 respectively

for PPMS). Among the control variables at Step 2 of the analysis, years of education had a

significantly positive effect on SWL for participants with PPMS (beta = .35, P = .04). Years

of education had a significant negative effect on depression for participants with PPMS (beta

= -.31, P = .04). Age had a significant negative effect on anxiety for participants with PPMS

(beta = -.29, P = .046). In both analyses, group identification explained a significant amount

of variance in addition to the variance explained by education and age on each health

outcome. RRMS analysis effect sizes ranged from just below medium-sized for depression

(.12) and anxiety (.13) to medium-sized for SWL (.17). PPMS analysis effect sizes were all large (.36, .51, and .29 for depression, anxiety, and SWL respectively) [33].

Secondary Progressive. For participants with SPMS, support group identification was not linked to any of the three health outcomes at Step 2 of the regression; betas were -.15, -.07, and .09, respectively, when depression, anxiety and SWL were used as outcomes (*P*s > .34). Neither education nor age had any significant effects. All effect sizes were small (≤.02) [33].

Discussion

These results confirm our key prediction. Higher levels of MS support group identification were associated with lower levels of depression and anxiety, and with higher levels of SWL. Moreover, this relationship remained even when years of education and age (two potentially-important control variables) were taken into account.

In addition, we found that the relationship between support group identification and mental health differed depending on MS sub-type. Whilst the relationship was present for participants with Relapsing-Remitting and Primary Progressive MS, it was absent for participants with Secondary Progressive MS.

We also found that support group identification was unrelated to any demographic variables, except for gender, with women identifying more than men. This is most likely due to women generally possessing higher levels of relationality than men, and is supported by the finding that while men are more likely to obtain their most important social support from spouses, women are more likely to obtain it from outside the immediate family (e.g., friends and support groups) [35].

We began our work with the intention of trying to explain the generally-disappointing outcomes of the effects of MS support groups on mental health that have been presented in the literature [14, 15]. We believe that our key result regarding higher levels of MS support

group identification predicting better mental health might go some way to explaining these mixed findings. We suggest that a crucial (but largely neglected) deciding factor in the success (or otherwise) of MS support group-related experiences is the extent to which the individual subjectively identifies with the support group in question. In situations where group identification is high, it is likely that support group engagement will benefit mental health. However, in situations where identification is low or absent it is unlikely that such benefits will be observed. Indeed, it is possible that attending a support group in such circumstances could actually be *harmful* for mental health, since interpersonal interactions which promote feelings of conflict and negativity are more likely to occur [36].

Importantly, these results might also have implications for support groups established for people suffering from other illnesses. Many studies have highlighted the positive psychological effects of support group engagement, such as work showing that metastatic breast cancer patients who attended a support group experienced improved mood and fewer phobias [37], as well as reductions in depression, anxiety, confusion and anger [38]. Similarly, patients with head and neck cancer who participated in a support group experienced higher levels of emotional wellbeing and mental health [39], while depressed HIV-infected males who attended a social support group showed reductions in depression, hostility and anxiety [40]. However, as with MS support groups, not all research has revealed such positive results. For instance, in a study investigating the effects of Brief-Supportive-Expressive Group Psychotherapy on women with systemic lupus erythematosus (SLE), no clinically-important improvements in psychological distress or quality of life were observed [41]. Moreover, a study involving women with breast cancer found no evidence of participants benefitting from peer discussion groups: indeed, such engagement was found to have potentially harmful effects, such as more negative downward comparisons and intrusive thoughts [42]. These varying outcomes confirm that mere participation in a support group

does not predict mental health. We suspect that these mixed results are due to differential levels of group identification across the groups assessed. In other words, we believe that where a support group appeared to be beneficial for mental health, this was because group members tended to identify highly with the group.

Focussing on our comparison between MS sub-groups, the fact that support group identification is associated with mental health only among people with either Relapsing Remitting or Primary Progressive MS, but not among people with Secondary Progressive MS, is hard to explain. Comparing the demographic data obtained for each of the three sub-groups reveals nothing which would seem to point to an explanation, except perhaps for one element: illness duration. Participants with Secondary Progressive MS had lived with the disease for significantly longer than those with Relapsing Remitting MS or Primary Progressive MS, which is consistent with the finding that Secondary Progressive MS tends to develop some years after an initial diagnosis of Relapsing Remitting MS (as mentioned previously, 90% of people with RRMS transition to SPMS within 25 years) [4]. This suggests that the average person with Secondary Progressive MS is likely to have experienced many more years of physical and mental decline than those with Relapsing Remitting MS and Primary Progressive MS, and this may contribute to an increased sense of hopelessness and negativity regarding their condition. It might be the case that even identifying highly with one's support group cannot help to improve one's mental health in the face of such hopelessness and long-term illness. However, this is a tentative conclusion, and further research is required to ascertain whether this is a valid possibility. Moreover, since many people with Relapsing Remitting MS (the most common sub-type of MS) [3] will eventually transition to Secondary Progressive MS, it is important for future research to explore whether there may be contexts in which support groups are psychologically beneficial for people with Secondary Progressive MS.

Limitations

The clearest limitation of our study is that it is cross-sectional. This makes it difficult to establish causality within the study's parameters: does MS support group identification reduce depression and anxiety, or are mentally healthy people simply more likely to join (and identify strongly with) MS support groups? A longitudinal study would provide a stronger test of our key hypothesis, since it would enable us to establish the direction of the causal link between MS support group identification and mental health. Indeed, a longitudinal study would be particularly appropriate in the context of the present study, since MS is a dynamic disease that involves progression and transition: aspects which a longitudinal study could cater and control for.

Practical Implications

Our work has important implications for practicing clinicians. Most clearly, MS patients (particularly those with Relapsing-Remitting and Primary Progressive MS) should be encouraged to engage with support groups, but more must be done to ensure they subjectively identify with these support groups (rather than simply attend them). Previous work has shown that giving group members a sense of collective agency over decisions regarding the group's development (such as deciding how to decorate the group's interaction space) enables group identification to develop, so such initiatives may prove fruitful in the current context [43].

In conclusion, this work shows that, in the cases of Relapsing-Remitting and Primary Progressive MS, higher levels of MS support group identification are linked to better mental health, even when age and education level are controlled for. Our study therefore highlights the important role that group life can play in helping people cope with MS. By encouraging people to take part in support groups, and by fostering a sense of subjective identification with those support groups, we have the chance to improve the mental health (and thus the lives) of millions of people with this potentially-debilitating disease.

Acknowledgements

Competing Interest/Disclosure Statement

All authors have completed the Unified Competing Interest form and declare that they have no competing interests to report.

References

[1] Mohr DC, Dick LP, Russo D, Pinn J, Boudewyn AC, Likosky, W, et al. The psychosocial impact of multiple sclerosis: Exploring the patient's perspective. Health Psychol 1999; 18: 376-382.

[2] Lublin FD, Reingold, SC. Defining the clinical course of multiple sclerosis. Neurology 1996; 46: 907-911.

[3] Compston A. Multiple sclerosis. Lancet 2008; 372 (9648): 1502-1517.

[4] Burks JS, Arnason BG, Coyle PK, Ford CC, Noronha A, Rammohan KW. Issues and practices in multiple sclerosis. Neurorehabil Neural Repair 2002; 16: 307-320.

[5] Mohr DC, Cox D. Multiple sclerosis: Empirical literature for the clinical health psychologist. J Clin Psychol 2001; 57: 479-499.

[6] Siegert RJ, Abernethy DA. Depression in multiple sclerosis: A review. J Neurol Neurosurg Psychiatry 2005; 76: 469-475.

[7] Patten SB, Beck CA, Williams JVA, Barbui C, Metz LM. Major depression in multiple sclerosis: A population-based perspective. Neurology 2003; 61: 1524-1527.

[8] Beiske AG, Svensson E, Sandanger I, Czujko B, Pedersen ED, Aarseth JH, et al. Depression and anxiety amongst multiple sclerosis patients. Euro J Neurol 2008; 15: 239-245.

[9] Korostil M, Feinstein A. Anxiety disorders and their clinical correlated in multiple sclerosis patients. Mult Scler 2007; 13: 67-72.

[10] Fiore J, Becker J, Coppel DB. Social network interactions: A buffer or a stress. Am J Community Psychol 1983; 11: 423-439.

[11] Schwartz C, Frohner R. Contribution of demographic, medical, and social support variables in predicting the mental health dimension of quality of life among people with multiple sclerosis. Health Soc Work 2005; 30: 203-212.

[12] Wineman NM. Adaptation to multiple sclerosis: The role of social support, functional disability, and perceived uncertainty. Nurs Res 1990; 39: 294-299.

[13] Williams RM, Turner AP, Hatzakis M, Chu S, Rodriguez, AA, Bowen, JD, et al. Social support among veterans with multiple sclerosis. Rehabil Psychol 2004; 49: 106-113.

[14] Uccelli M, Mohr M, Battaglia, MA, Zagami P, Mohr DC. Peer support groups in multiple sclerosis: Current effectiveness and future directions. Mult Scler 2004; 10: 80-84.

[15] Mohr DC, Boudewyn AC, Goodkin DE, Bostrom A, Epstein L. Comparative outcomes for individual cognitive-behavior therapy, supportive-expressive group psychotherapy, and sertraline for the treatment of depression in multiple sclerosis. J Consult Clin Psych 2001; 69: 942-949.

[16] Turner JC, Hogg MA, Oakes P, Reicher S, Wetherell MS. Rediscovering the social group: A Self-Categorization Theory. Oxford: Basil Blackwell, 1987.

[17] Tajfel H, Turner JC. The social identity theory of inter-group behaviour. In: Worchel S, Austin LW, editors. Psychology of intergroup relations. Chicago: Nelson-Hall; 1986. p 7-24.

[18] Lincoln KD, Chae DH. Emotional support, negative interaction and major depressive disorder among African Americans and Caribbean Blacks: findings from the National Survey of American Life. Soc Psychiatry Psychiatr Epidemiol 2012; 47: 361-372.

[19] Jetten J, Haslam C, Haslam SA, editors. The social cure: Identity, health, and well-being. New York: Psychology Press, 2012.

[20] Sani F, Herrera M, Wakefield JRH, Boroch O, Gulyas C. Comparing social contact and group identification as predictors of mental health. Brit J Soc Psychol 2012; 51: 781-790.

[21] Sani F, Magrin ME, Scrignaro M, McCollum R. Ingroup identification mediates the effects of subjective ingroup status on mental health. Brit J Soc Psychol 2010; 49: 883-893.

[22] Doosje B, Ellemers N, Spears R. Perceived intragroup variability as a function of group status and identification. J Exp Soc Psychol 1995; 31: 410-436.

[23] van Dick R, Haslam SA. Stress and well-being in the workplace. In: Jetten J, Haslam C, Haslam SA, editors. The social cure: Identity, health, and well-being. New York: Psychology Press, 2012. p 175-194.

[24] Haslam SA. Psychology in organizations. London: Sage, 2001.

[25] Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. Acta Neurol Scand 1983; 67: 361-370.

[26] Diener E, Emmons RA, Larsen R J, Griffin S. The Satisfaction With Life Scale. J Pers Assess 1985; 49: 71-75.

[27] Motl RW, McAuley E, Snook EM, Gliottoni RC. Physical activity and quality of life in multiple sclerosis: Intermediary roles of disability, fatigue, mood, pain, self-efficacy and social support. Psychol Health Med 2009; 14: 111-124.

[28] Packenham KI. Benefit finding in multiple sclerosis and associations with positive and negative outcomes. Health Psychol 2005; 24: 123-132.

[29] Menard, S. Applied logistic regression analysis. London: Sage, 2001.

[30] Kleinbaum DG, Kupper LL, Muller KE, Nizam A. Applied regression analysis and other multivariate methods. London: Duxbury Press,1998.

[31] Cohen J, Cohen P, West SG, Aiken LS. Applied multiple regression/correlation analysis for the behavioural sciences. London: Routledge, 2003.

[32] Field A. Discovering statistics using SPSS. London: Sage, 2009.

[33] Cohen J. Statistical power analysis for the behavioral sciences. Hillsdale NJ: Lawrence Erlbaum, 1988.

[34] Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale: An updated literature review. J Psychosom Res 2002; 52: 69-77.

 [35] Antonucci TC, Akiyama H. An examination of sex differences in social support among older men and women. Sex Roles 1987; 17: 737-749.

[36] Rook KS. The negative side of social interaction: Impact on psychological well-being. J Pers Soc Psychol 1984; 46: 1097-1018.

[37] Spiegel D, Bloom JR, Kraemer HC, Gottheil E. Effect of psychosocial treatment on survival of patients with metastatic breast cancer. Lancet 1989; 2: 888-891.

[38] Cunningham AJ, Edmonds CV, Jenkins GP, Pollack H, Warr D. A randomized controlled trial of the effects of group psychological therapy on survival in women with metastatic breast cancer. Psychooncology 1998; 7: 508-517.

[39] Vakharia KT, Ali MJ, Wang SJ. Quality-of-life impact of participation in a head and neck cancer support group. Otolaryngol Head Neck Surg 2007; 136: 405-410.

[40] Kelly JA, Murphy DA, Bahr GR, Kalichman SC, Morgan MG, Stevenson LY, et al. Outcome of cognitive-behavioral and support group brief therapies for depressed HIV-infected persons. Am J Psych 1993; 150: 1679-1689.

[41] Dobkin PL, Da Costa D, Joseph L, Fortin PR, Edworthy S, Barr S, et al. Counterbalancing patient demands with evidence: Results from a pan-Canadian randomized clinical trial of brief supportive-expressive group psychotherapy for women with systemic lupus erythematosus. Ann Behav Med 2002; 24: 88-99.

[42] Helgeson VS, Cohen S, Schultz R, Yasko J. Education and peer discussion group interventions and adjustment to breast cancer. Arch Gen Psychiat 1999; 56: 340-347.

[43] Knight C, Haslam SA, Haslam C. In home or at home? How collective decision making in a new care facility enhances social interaction and wellbeing amongst older adults. Age Soc 2010; 30: 1393-1418.

Table 1

Means (with standard deviations) and percentages for key socio-demographic and clinical variables for the whole sample and for each of the three MS sub-types.

		MS Sub-Type		
	Whole Sample	Relapsing-Remitting	Primary-Progressive	Secondary-Progressive
N	152	53	38	55
% female	63.16%	71.70%	52.63%	22
Age (years)	52.01 (11.08)	45.21 (11.26)	55.74 (10.56)	54.90 (8.06)
Years of education	14.92 (3.58)	15.28 (3.31)	15.17 (3.62)	14.21 (3.41)
Number of siblings	1.72 (1.43)	1.63 (1.30)	1.66 (1.48)	1.80 (1.57)
Number of children	1.84 (1.39)	1.56 (1.42)	1.92 (1.15)	2.04 (1.54)
Age officially diagnosed	38.37 (11.49)	34.98 (10.32)	43.78 (12.03)	37.43 (10.90)
Duration of MS (years)	13.55 (9.94)	9.92 (8.42)	11.84 (9.49)	17.84 (9.90)
Support Group Identification (1-7)	5.72 (1.35)	5.75 (1.42)	5.82 (1.29)	5.54 (1.37)
Satisfaction With Life (1-7)	3.56 (1.44)	3.67 (1.43)	3.46 (1.47)	3.39 (1.37)
Anxiety (0-21)	9.56 (2.82)	9.96 (2.99)	9.05 (2.50)	9.75 (2.85)
Depression (0-21)	7.59 (3.14)	7.60 (3.02)	7.49 (2.43)	7.96 (3.57)
Relationship Status (%)				
Single	7.30%	7.70%	8.10%	7.30%
In A Relationship	11.30%	15.40%	8.10%	10.90%
Married	64.70%	59.60%	62.20%	69.10%
Divorced	12.00%	15.40%	13.50%	7.30%
Widowed	4.70%	1.90%	8.10%	5.50%
Job Type (%)				
Retired/unemployed	12.60%	9.40%	13.20%	14.80%
Semi-skilled	14.60%	24.50%	10.50%	9.30%
Skilled trade	9.90%	7.50%	10.50%	13.00%
Administration	14.60%	9.40%	15.80%	16.70%
Manager/director/professional	48.30%	49.10%	50.00%	46.30%

Note that the number of participants in each sub-group does not total 152, as four participants classified themselves as having Benign MS and two participants failed to disclose their MS sub-type.

Table 2

Intercorrelations (With Variable Reliabilities Where Applicable)

Variable	Support Group Identification	Depression	Anxiety	Satisfaction with Life	Years of Education	Age
Support Group Identification (α = .94)	-					
Depression (α = .72)	-.31**	-				
Anxiety (α = .77)	-.27**	.54**	-			
Satisfaction with Life (α = .85)	.29**	.61**	.40**	-		
Years of Education	-.05	-.03	-.04	.00	-	
Age	.10	-.13	-.19*	.10	-.14	-

** P < .01; * P < .05

Table 3
Whole Sample ($N = 152$): Summary of hierarchical multiple regression analysis for variables predicting (a) depression, (b) anxiety, and (c) Satisfaction with Life.

Sequence of entry	B	SE	β	P β	R^2	ΔR^2	$P \Delta R^2$	Cohen's f^2
(a)DV = Depression								
1. $F(2,132)=1.38, P=.26$					.02	.02	NS	
Education	-.03	.08	-.04	NS				
Age	-.04	.03	-.14	NS				
2. $F(3,131)=5.49, P=.001$					.11	.09	<.001	.10
Education	-.04	.08	-.04	NS				
Age	-.03	.02	-.10	NS				
Group Identification	-.74	.20	-.31	<.001				
(b)DV = Anxiety								
1. $F(2,131)=3.50, P=.03$					.05	.05	.03	
Education	-.05	.07	-.06	NS				
Age	-.06	.02	-.23	.01				
2. $F(3,130)=7.06, P<.001$					.14	.09	<.001	.10
Education	-.06	.07	-.07	NS				
Age	-.05	.02	-.19	.03				
Group Identification	-.65	.18	-.30	<.001				
(c)DV = Satisfaction with Life								
1. $F(2,133)=1.00, P=.37$					.02	.02	NS	
Education	.01	.04	.02	NS				
Age	.02	.01	.12	NS				
2. $F(3,132)=5.29, P=.002$					.11	.09	<.001	.10
Education	.02	.04	.04	NS				
Age	.01	.01	.09	NS				
Group Identification	.34	.09	.31	<.001				

Table 4
Participants with Relapsing-Remitting MS only (n = 53): Summary of hierarchical multiple regression analysis for variables predicting (a) depression, (b) anxiety, and (c) Satisfaction with Life.

Sequence of entry	B	SE	β	$P\,\beta$	R^2	ΔR^2	$P\,\Delta R^2$	Cohen's f^2
(a)DV = Depression								
1. $F(2,46)=2.21$, $P=.12$					.09	.09	NS	
Education	.23	.14	.25	NS				
Age	-.03	.04	-.10	NS				
2. $F(3,45)=3.40$, $P=.03$					.19	.10	.03	.12
Education	.21	.13	.23	NS				
Age	-.02	.04	-.06	NS				
Group Identification	-.71	.31	-.32	.03				
(b)DV = Anxiety								
1. $F(2,45)=0.30$, $P=.74$					.01	.01	NS	
Education	-.03	.14	-.03	NS				
Age	-.03	.04	-.12	NS				
2. $F(3,44)=2.08$, $P=.12$					.12	.11	.02	.13
Education	-.04	.14	-.05	NS				
Age	-.02	.04	-.08	NS				
Group Identification	-.75	.32	-.34	.02				
(c)DV = Satisfaction with Life								
1. $F(2,46)=3.06$, $P=.06$					.12	.12	NS	
Education	-.11	.06	-.26	NS				
Age	.02	.02	.16	NS				
2. $F(3,45)=5.03$, $P=.004$					.25	.13	.01	.17
Education	-.11	.06	-.24	NS				
Age	.02	.02	.12	NS				
Group Identification	.40	.14	.37	.01				

Table 5
Participants with Primary Progressive MS only ($n = 38$): Summary of hierarchical multiple regression analysis for variables predicting (a) depression, (b) anxiety, and (c) Satisfaction with Life.

Sequence of entry	B	SE	β	P β	R^2	ΔR^2	P ΔR^2	Cohen's f^2
(a)DV = Depression								
1. $F(2,32)=2.38, P=.11$					.13	.13	NS	
Education	-.17	.12	-.23	NS				
Age	-.07	.04	-.31	NS				
2. $F(3,31)=5.85, P=.003$					.36	.23	.002	.36
Education	-.22	.10	-.31	.04				
Age	-.02	.04	-.08	NS				
Group Identification	-1.06	.32	-.55	<.001				
(b)DV = Anxiety								
1. $F(2,32)=6.67, P=.004$					.29	.29	.004	
Education	.08	.10	.11	NS				
Age	-.12	.04	-.52	.002				
2. $F(3,31)=11.42, P<.001$					.53	.23	.001	.51
Education	.02	.09	.02	NS				
Age	-.07	.03	-.29	.046				
Group Identification	-1.05	.27	-.54	.001				
(c)DV = Satisfaction with Life								
1. $F(2,33)=1.11, P=.34$					.06	.06	.NS	
Education	.08	.07	.20	NS				
Age	.02	.02	.16	NS				
2. $F(3,32)=4.02, P=.02$					.27	.21	.005	.29
Education	.14	.07	.35	.04				
Age	.00	.02	-.02	NS				
Group Identification	.58	.19	.51	.005				

Table 6
Participants with Secondary Progressive MS only ($n = 55$): Summary of hierarchical multiple regression analysis for variables predicting (a) depression, (b) anxiety, and (c) Satisfaction with Life.

Sequence of entry	B	SE	β	$P\ \beta$	R^2	ΔR^2	$P\ \Delta R^2$	Cohen's f^2
(a)DV = Depression								
1. $F(2,43)=-.13, P=.88$					.01	.01	NS	
Education	-.07	.17	-.06	NS				
Age	-.02	.07	-.05	NS				
2. $F(3,42)=0.39, P=.76$					.03	.02	NS	.02
Education	-.06	.17	-.06	NS				
Age	-.02	.07	-.05	NS				
Group Identification	-.39	.40	-.15	NS				
(b)DV = Anxiety								
1. $F(2,43)=0.18, P=.83$					.01	.01	NS	
Education	-.08	.14	-.09	NS				
Age	.01	.05	.02	NS				
2. $F(3,42)=0.19, P=.91$					.01	.01	NS	.00
Education	-.08	.14	-.09	NS				
Age	.01	.06	.02	NS				
Group Identification	-.15	.33	-.07	NS				
(c)DV = Satisfaction with Life								
1. $F(2,43)=0.20, P=.82$					.01	.01	NS	
Education	.04	.07	.09	NS				
Age	.01	.03	.04	NS				
2. $F(3,42)=-.25, P=.86$					.02	.01	NS	.01
Education	.04	.07	.09	NS				
Age	.01	.03	.04	NS				
Group Identification	.10	.16	.09	NS				