

Table 1: Mean (SD) of current sample and normative data

	Physical functioning	Role limitations because of physical health problems	Bodily pain	General health perceptions	Vitality	Social functioning	Role limitations because of emotional problems	General mental health
Current study	64.27 (33.45)	51.75 (42.23)	66.22 (31.04)	55.71 (24.76)	50.45 (23.79)	63.66 (29.74)	48.66 (43.27)	34.27 (15.44)
Tehran normal sample ^b	85.3 (20.8)	70.0 (38.0)	79.4 (25.1)	67.5 (20.4)	65.8 (17.3)	76.0 (24.4)	65.6 (41.4)	67.0 (18.0)
95% CI for Tehran normal sample	66.45-67.54	68.84-71.15	78.63-80.1	66.88-68.11	65.27-66.32	75.25-76.74	64.34-66.85	66.45-67.54

Table 2: Mean (SD) and independent t test for marital status

	Single	Married	t	P
Full Scale	62.31 (18.90)	57.50 (24.46)	0.90	NS
Physical Component	64.13 (23.48)	59.48 (25.18)	0.81	NS
Mental Component	54.21 (17.26)	48.60 (24.74)	1.06	NS
Physical Functioning	71.47 (33.56)	64.64 (32.64)	0.90	NS
Role Limitations Because of Physical Health Problems	59.61 (44.20)	51.83 (41.50)	0.79	NS
Bodily Pain	71.44 (32.07)	64.22 (31.16)	0.99	NS
General Health Perceptions	54.01 (18.55)	57.23 (26.69)	0.56	NS
Vitality	55.38 (15.16)	49.41 (26.30)	1.08	NS
Social functioning	71.97 (23.08)	62.66 (31.02)	1.38	NS
Role Limitations Because of Emotional Problems	52.56 (37.91)	48.03 (45.48)	0.451	NS
General Mental Health	36.93 (11.78)	34.28 (16.39)	0.75	NS

NS: not significant

normal sample and reported these values in the third row of Table 1. The mean for each subscale score lay outside the 95% CI; thus, the averages of the subscales in the current study are significantly lower than those of the normal group.^[11] Of note, the subscale with the lowest value in this study is the general mental health subscale.

Table 2 summarizes the scores assessing marriage status. This Table shows that the scores of unmarried patients were higher than those of married patients for every measure except for the general health perception subscale; however, the difference between the overall scores for both groups was not statistically significant. Therefore, the marital status could not significantly affect the SF-36 scores.

The mean (SD) scores of the SF-36 and its subscales for women and men are presented in Table 3. The total average scores among men were higher than those for women except for the general health perception

Table 3: Average scores for female patients and male patients

	Females	Males
Full Scale	57.14 (22.16)	59.08 (27.87)
Physical Component	59.17 (24.05)	60.71 (27.47)
Mental Component	48.49 (22.0)	52.35 (27.70)
Physical Functioning	63.58 (33.10)	67.04 (35.57)
Role Limitations Because of Physical Health Problems	51.25 (42.26)	53.75 (43.13)
Bodily Pain	64.50 (31.54)	73.00 (28.70)
General Health Perceptions	57.36 (23.59)	49.07 (28.67)
Vitality	49.25 (23.35)	55.25 (25.51)
Social Functioning	63.65 (27.93)	63.68 (36.95)
Role Limitations Because of Emotional Problems	47.08 (43.63)	55.00 (42.26)
General Mental Health	33.97 (14.99)	35.48 (17.48)

subscale, which may reflect gender differences or differing expectations of health.

A 2 (gender) × 3 (educational levels) factorial MANOVA was performed to examine the effect of gender and educational levels on the eight subscales of the SF-36 as dependent variables. The results from the MANOVA analyzing the eight subscales of SF-36 were statistically significant (Wilkes's lambda = 0.143, $F(8, 87) = 65.047$, $P < .001$). The MANOVA output for the main effect of gender (male vs. female) indicated no significant effect (Wilkes's lambda = 0.90, $F(8, 87) = 1.21$). No statistically significant differences among the three educational levels as the main effect were observed (Wilkes's lambda = 0.85, $F(8, 87) = 0.895$). The MANOVA results suggest that the interaction between gender and educational level was not statistically significant (Wilkes's lambda = 0.823, $F(8, 87) = 1.11$). Therefore, a one-way repeated measures ANOVA with a Greenhouse-Geisser correction was used to detect any potential significant difference between the means of the dependent variables (the eight subscales of the SF-36), which showed that the means of the eight subscales of the SF-36 scores were significantly different [$F(4.818, 476.974) = 19.114$, $P < 0.000$]. Partial Eta Squared ($\eta^2_p = 0.162$) showed that almost 16% of the variance in the score can be accounted for by mean differences. The results from the ANOVA with repeated measures showed that there is an overall significant difference between the means of the subscales. A post-hoc Bonferroni pairwise comparison was used to detect any differences [Table 4]. Table 4 shows that there are

Table 4: Bonferroni pairwise comparison between the means of dependent variables

	Role limitations of physical health problems	Bodily pain	General health perceptions	Vitality	Social functioning	Role limitations of emotional problems	General mental health
Physical functioning	D = 12.52 S = 3.560 P = .018	D = 30.00 S = 3.05 P = .000	D = 15.60 S = 4.41 P = .017	D = 8.56 S = 2.98 P = NS*	D = -1.92 S = 3.71 P = NS	D = .61 S = 3.05 P = NS	D = 13.82 S = 2.74 P = .000
Role limitations of physical health problems		D = 17.47 S = 4.03 P = .001	D = 3.08 S = 4.53 P = NS	D = -3.96 S = 4.09 P = NS	D = -14.45 S = 4.06 P = .016	D = -11.91 S = 3.81 P = NS	D = 1.30 S = 3.79 P = NS
Bodily pain			D = -14.39 S = 3.91 P = .011	D = -21.43 S = 2.00 P = .000	D = -31.92 S = 3.03 P = .000	D = -29.38 S = 2.32 P = .000	D = -16.17 S = 1.66 P = .000
General health perceptions				D = -7.04 S = 4.015 P = NS	D = -17.53 S = 4.02 P = .001	D = -14.99 S = 3.87 P = .005	D = -1.78 S = 3.71 P = NS
Vitality					D = -10.490 S = 3.659 P = NS	D = -7.953 S = 2.691 P = NS	D = 5.260 S = 2.037 P = NS
Social functioning						D = 2.53 S = 3.42 P = NS	D = 15.75 S = 3.08 P = .000
Role limitations of emotional problems							D = 13.212 S = 2.092 P = .000

*Not significant

several significant differences between the means.

For example, physical and social functions were not statistically different; however, physical function was statistically different from the general health perceptions and general mental health. The paired *t*-test indicated that there was a significant difference between the average of the physical component and that of the mental component ($t = 5.72$, $df = 99$, $P < .001$).

DISCUSSION

In this study, our findings suggest that the total HRQoL scores in patients with MS were significantly lower than those of the normal general population in Iran.^[11] Similar findings have been previously reported in other countries,^[12,13] which also demonstrated lower HRQoL scores in patients with MS when compared with those of healthy persons. Furthermore, HRQoL scores among patients with MS were even lower than those among patients with other chronic diseases such as rheumatoid arthritis and inflammatory bowel disease.^[14] Reports from other countries have shown the same results, for example, patients with MS have more frequently reported chronic pain than members of a healthy control group.^[15] Alternatively, these reports have documented a higher percent of unemployment and retirement among patients with MS.^[16] The authors of a review article in Croatia described patients with MS as having a lower quality of life than that of either a non-patient population or an otherwise unhealthy population.^[17] The above mentioned findings can be explained by the chronic and long-standing course of MS as well as the unpredictable and disabling nature of the disease.

Our study also shows that the scores of the mental components of the HRQoL were significantly lower than those of the physical components among the study participants. Of note, it is commonly believed that MS is a progressive and physically disabling sickness, and patients with MS are more likely to display mental and psychological problems. Patients with MS may feel low self-efficacy because they feel that there are many limitations affecting their activities, and they are restricted from participating in social events. Low self-efficacy in a chain of events that can impact work, social life, family relationships, mood and QoL.^[18] Common neuropsychiatric disorders experienced by patients with MS are anxiety, depression, cognitive decline, irritability and anger.^[19] Some studies have reported that the rate of depression, anxiety and suicide in the patients with MS is higher than that of the general population with other medical conditions.^[20] The neuropsychiatric symptoms of MS occur early during the course of the disease. For example, researchers observe the presence of cognitive function impairment in 60% of patients with a disease duration of less than 2 years.^[21] Additionally, research suggests that as early as one year following diagnosis with MS, about half of patients exhibit depression, anxiety and distress.^[22] In a recent critical review conducted by *Ciro et al.*^[23] the authors found several case reports of bipolar disorder clearly preceding MS onset. Some studies examining the HRQoL in the patients with MS have shown that the clinicians are more concerned with the physical problems of the disease whereas the patients mainly believed that their vitality, role limitations, emotional problems, and mental health are essential indicators of disease burden.^[24]

