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ORIGINAL ARTICLE

The impact of social media use on depression in multiple sclerosis patients

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Abstract

Social media is a powerful tool in providing information and support for minority groups such as patients with chronic diseases. We aimed to assess the link between using online social media and depression in a sample population of Iranian Multiple Sclerosis (MS) patients. In this cross-sectional study, a number of MS patients between 18–55 years were recruited. The Persian-language version of the Beck Depression Inventory-II (BDI-II-Persian) was used to screen MS patients for depression. We selected a cut-off point of 16 to identify depressed MS patients, who answered the self-administered questionnaire designed by the authors (the validity and reliability was confirmed before). Patients, whose interaction with social networks and communication tools was limited to <1 h/day for <5 times/month, were allocated as controls. A two-sided $p<0.05$ was considered statistically significant. We compared the depression score between patients who used internet and social media (16.38 ± 8.35) with those who did not (25 ± 13.98). We found out there was a significant difference ($p=0.046$). However, there were no significant differences between the type ($r=0.098$, $p=0.513$) and duration ($r=-0.102$, $p=0.564$) of social media with depression score. Also, based on a cut-off of 3 number of social media there was no significant difference in the status of depression among patients ($p=0.921$). Based on the experience of patients, it is helpful to implement a source using online social media to facilitate patients' access to rehabilitation support and establish support groups with standard supervised information delivery.

Keywords Social networking · Multiple sclerosis · Depression · Health policy

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Introduction

Besides physical disability, multiple sclerosis (MS) can lead to a wide spectrum of psychological disorders, thereby posing a negative impact on patients' quality of life [1, 2]. In particular, MS-associated depression is estimated to have a prevalence of 25%; however, variations exist among reports [2]. This complication has been attributed to the underlying pathology of the disease and also considered an adverse outcome of the distressing state of diminished well-being [3]. Consequently, depression reduces treatment compliance only to create a vicious cycle [4]. Due to the serious sequela of depression, MS patients should be actively evaluated for related findings and benefit from effective interventions to prevent further deterioration of their condition. Commonly recommended options include antidepressant medications, cognitive-behavioral therapy, and exercise [5, 6]. The widespread use of pharmacological therapy, as the mainstay of management, seems to be based on its efficacy in idiopathic major depressive disorder, whereas evidence is lacking for MS-associated depression [7]. According to a Canadian study, although generally more patients receive treatment as compared to the past, persistence of symptoms indicate the inadequacy of employed approaches [8]. Unfortunately, another study form Iran pointed out that while depression rate among patients with MS was 60%, unrecognized/untreated depression came up to 44.1% [9]. This gap calls for implementing feasible strategies that can appeal to patients in addition to being accessible, safe, and cost-effective.

Over the past years, patients have shown a growing tendency to use online resources parallel to clinical visits, especially in the early course of the disease. Considering that people with MS are vulnerable to poor psychological health, disempowerment, and social exclusion including high unemployment and economic problems, this tendency to use online resources can potentially exert a positive influence on adherence to treatment, coping measurements, patient empowerment, and physician–patient relationship [5, 10]. Social networks have emerged as a potent tool for public health education and promotion by providing a medium for information sharing and social support in online communities [11]. Despite recognized downsides such as cyberbullying or delivery of misinformation, social media allows minority groups, for instance patients with chronic diseases, to interact with their peers and overcome isolation and helplessness [12]. Furthermore, online real-time social media platforms address some patients' concern regarding the costs and time-consumption of traditional in-person support programs [13]. The impact of social media in context of chronic diseases has been pointed out by several studies yielding varying results [14–16]. We aimed to assess the link between using online social media and depression in a sample population of Iranian MS patients. To the best of our knowledge, no similar reports were available in the literature.

Materials and methods

Patients and setting

In this cross-sectional study, a number of MS patients with depression were recruited via convenience sampling in the outpatient rehabilitation clinic of a tertiary referral center (Chamran hospital, affiliated with Shiraz University of Medical Sciences, Shiraz, Iran) in 2017. Inclusion criteria were confirmed diagnosis of MS, age between 18–55 years, and a score of 16 points or higher on the Beck Depression Inventory-II (BDI-II). Exclusion criteria were poor literacy, mental or cognitive disorders, and lack of consent. The protocol of study was in accordance with the principles of Helsinki Declaration and approved by the ethics committee of Shiraz University of Medical Sciences, Shiraz, Iran. Data confidentiality was guaranteed. Informed verbal consent was obtained from participants.

Data gathering

First, the Persian-language version of the Beck Depression Inventory-II (BDI-II-Persian) was used to screen MS patients for depression [17]. BDI-II, a modification of the original questionnaire introduced in 1961 [18], is a 21-item self-report measure of depression widely applied in clinical and non-clinical settings, that corresponds to DSM-IV criteria for diagnosing depressive disorders and covers cognitive, affective, somatic, and vegetative aspects of depression [19]. Each question has a 4-point scale from 0 to 3 (total score range = 0–63). Although no definite cut-off is used to classify the severity of depression, the sum score can be interpreted as follows: 0–13: minimal, 14–19: mild, 20–28: moderate, and 29–63: severe [20].

We selected a cut-off point of 16 to identify depressed MS patients. These patients were subsequently requested to answer the self-administered questionnaire designed by the authors. This questionnaire consisted of two parts: (1) baseline parameters including age, gender, marital status, level of education, and disease duration, and (2) information about using online social media including the social networks, the favorite social network, duration of membership, and the time spent on a daily basis (hour/day). Patients, whose interaction with social networks and communication tools was limited to < 1 h/day for < 5 times/month, were allocated as controls.

Statistical analysis

Data were analyzed using Windows Statistical Package for Social Sciences (SPSS, Chicago, IL, USA), version 16.0. A two-sided p value less than 0.05 was considered as the statistical level of significance.

Results

A total of 95 eligible MS patients, were evaluated for the association between using online social media and BDI-II-Persian depression score. Table 1 summarizes the characteristics of our study population.

We compared the depression score between patients who used internet and social media (16.38 ± 8.35) with those who did not (25 ± 13.98). We found out there was a significant difference ($p = 0.046$). However, there were no significant differences between the type ($r = 0.098$, $p = 0.513$) and duration ($r = -0.102$, $p = 0.564$) of social media with depression score. Also, based on a cut-off of 3 number of social media there was no significant difference in the status of depression among patients ($p = 0.921$).

Table 1 Baseline characteristics of 95 MS patients

Parameters	Total
Age (mean ± SD, min−max)	34.25 ± 8.19 (21−63)
Age groups, *n* (%)	
18–29	28 (29.5%)
30–39	42 (44.2%)
> 40	25 (26.3%)
Gender, *n* (%)	
Male	20 (21.1%)
Female	75 (78.9%)
Marital status, *n* (%)	
Single	34 (64.2%)
Married	61 (35.8%)
Education, *n* (%)	
Non-academic	17 (17.9%)
Academic	78 (82.1%)
Duration (mean ± SD)	
≤ 1 year	15
> 1–7 years	30 (31.6%)
> 7–14 years	19 (20.0%)
> 14 years	14 (14.7%)
Using internet, *n* (%)	
Yes	68 (71.6%)
No	27 (28.4%)

Discussion

The results of this cross-sectional study confirm that using social media can help patient cope or hinder being affected by depression. Interestingly, the number, duration and type of these platforms do not influence this factor. It can be interpreted that being connected regardless of the means and ways of access to the internet can be advantageous for the patients. In fact, patients may specifically look for the information they need to know or seek support from others. It is showed by a previous study that the general health in an elderly population was in its optimum while assigned a reasonable amount of time on social media; they could learn enough from the media and also had enough time for exercise and an acceptable lifestyle.

Reviewing the recent literature, it is notable that technology is becoming an important part of medical practice from diagnosis to treatment. One of the useful aspects of technology in MS patients has been the use of social networks, for a better support in health-related coping, social interactions, and patient informing processes [21–23].

This study is the first to shed light on the positive effect of internet and social media in depression in MS patients. The grounds of this merit can be implied in a number of previous studies [24].

A study in 2011 reflected the popularity of social media among teenage students and their positive toward off for online social networking, as over 80% stated a regular use, and over half revealed they turned to internet to seek mental health support [25].

Fischer et al. designed an automated internet-based cognitive behavioral therapy program, Deprexis, to improve depressive symptoms in MS patients. The efficacy of this program was evaluated in a randomized controlled trial, which resulted in decreased BDI scores in the Deprexis group in contrast to the controls. Authors emphasized the advantage of this tool especially for patients afflicted by mobility impairments [26].

Steadman et al. investigated the experience of MS patients who were non-active users of an online Facebook support group and sought to determine the encouraging and discourage factors associated with membership. The authors concluded that the online Facebook support group could exert positive impacts regardless of passive membership status and the correlated barriers [27].

In a randomized clinical trial, Boeschoten et al. investigated the impact of a guided Internet-based problem-solving treatment (IPST) on BDI-II scores of moderately or severely depressed MS patients. Intervention and wait list groups were followed for 4 months. In both groups the scores dropped significantly as compared to the baseline; however, without any significant inter-group differences.

The authors attributed the unexpected improvement in the control group to the spontaneous recovery of a highly motivated subsample of patients. Another interesting finding was an overall failure of recovery in 75% of patients. Factors like baseline severity of depression and inadequate treatment were considered as possible contributors [28].

It was decided that the best method to adopt for this investigation was to evaluate "interactive social media" usage such as Facebook, Instagram, Whatsapp, Short Massage Services (SMS), or Telegram instead of not-interactive media like newspapers, radio, or television broadcastings.

Finding the most appropriate and common used social media may be an important concept for stewardship in health policy. Health policymakers, should manage the dissemination of incorrect and profitable information in social media addition to disseminating useful information to different large groups of audiences. Useful information shared in the media reduces the need for patients to visit the physicians' offices and hospitals and also enable them to communicate easily with their trusted physicians. Sharing useful experiences and informing other patients can sometimes prevent unnecessary referrals to the hospital and offices. These can save on gasoline, travel costs, and time and shifts. It is also notable that sudden outbreaks of public health events makes huge challenges to the health service systems. Recent experience of COVID-19 pandemic, indicated that the necessity of online interventions specially for mental health disorders is ineluctable. These interventions are becoming a trend in psychiatric therapies, particularly in patients with medical disabilities [29, 30].

Though this study provides evidence that using social media plays a significant role in MS patients' depression score, the reader should note its limitations and the ways in which future research might be enhanced.

This study is designed regarding Beck Depression Inventory-II and reports the results based on it. There are clearly further research agends here, which could fruitfully be pursed considering the other important criteria and depression scorings in the literature.

Considering the fact that some cultural variables might affect the outcome of research, further researches in other countries and societies may be helpful to find out if the same results will be achieved.

Conclusion

Based on the experience of patients, it is helpful to implement a source using online social media to facilitate patients' access to rehabilitation and psychological support and establish support groups with standard supervised information delivery.

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Compliance with ethical standards

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