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Effectiveness of Happiness-Based Psychotherapy on Life Quality and Self-Compassion in Patients with Multiple Sclerosis

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A B S T R A C T

Objective: This study aimed to investigate the effectiveness of happiness-based psychotherapy (HBT) on the quality of life (QoL), self-compassion of individuals with Multiple Sclerosis (MS).

Methods and Materials: In a quasi-experimental design, 50 MS patients were randomly assigned to either an experimental group (HBT intervention) or a control group. The intervention consisted of 12 weekly sessions focused on increasing self-compassion and happiness through therapeutic techniques. Data were collected at baseline (pre-intervention) and post-intervention using standardized self-report measures assessing QoL (MSQoL-54), self-compassion (Self-Compassion Scale), and happiness (Subjective Happiness Scale). ANCOVA was used to analyze the differences between the groups while controlling for baseline measures.

Findings: The results indicated that the experimental group showed significant improvements in all dimensions of QoL (physical health, mental health, social relationships, and environmental health) as well as self-compassion, compared to the control group. The ANCOVA revealed that the experimental group's improvements were statistically significant, with large effect sizes for all outcomes. These findings suggest that HBT can enhance both emotional and physical aspects of well-being in MS patients.

Conclusion: Happiness-based psychotherapy appears to be an effective intervention for improving the emotional well-being and quality of life of individuals with MS. Enhancing self-compassion and happiness through this therapeutic approach may provide a valuable tool in managing the psychological burdens of chronic illness and improving overall well-being in MS patients.

Keywords: *Multiple Sclerosis, happiness-based psychotherapy, quality of life, self-compassion, psychological intervention, ANCOVA, chronic illness*

1. Introduction

Quality of life (QoL) is a multifaceted concept that is influenced by physical, psychological, and social factors, and it plays a critical role in the overall well-being of individuals with chronic health conditions, such as Multiple Sclerosis (MS). MS, a progressive neurological disorder that affects the central nervous system, leads to a range of symptoms including physical disabilities, cognitive impairments, and psychological challenges. These symptoms significantly impact the QoL of individuals living with the disease, often resulting in diminished happiness, increased stress, and lowered emotional well-being (Broersma et al., 2018). Given the chronic nature of MS and its profound effects on various life domains, improving QoL has become a key therapeutic goal for patients and healthcare professionals alike. In recent years, therapeutic approaches that emphasize psychological and emotional well-being, such as compassion-based therapies, have gained attention for their potential to enhance QoL and overall happiness in individuals coping with chronic diseases like MS (Andalib et al., 2020; Talati et al., 2021).

Among the psychological constructs that have been found to influence QoL, self-compassion has emerged as a particularly promising factor. Self-compassion, as conceptualized by Neff (2003), involves treating oneself with kindness and understanding during times of failure or difficulty, recognizing that suffering is a shared human experience, and maintaining mindfulness about one's emotional pain. High levels of self-compassion have been associated with increased happiness, greater emotional regulation, and enhanced resilience in the face of life challenges (Asselmann et al., 2024; Gilbert et al., 2014). For individuals with MS, developing self-compassion could potentially serve as a buffer against the psychological and emotional toll of the disease, enhancing their ability to cope with the physical and emotional challenges associated with MS (Ysrraelit et al., 2018; Zahraie et al., 2018).

In addition to self-compassion, another crucial aspect of psychological well-being is happiness. As one of the most commonly sought-after emotional states, happiness is not only a result of positive life circumstances but also a key contributor to improved health outcomes (Veenhoven, 2024). In individuals with MS, happiness is often diminished due to the limitations imposed by the disease, including physical disabilities, cognitive impairment, and social isolation. As a result, therapeutic interventions aimed at enhancing happiness and emotional well-being in MS patients are of paramount importance (Hanna & Strober, 2020). Recent studies have shown that interventions designed to foster positive emotional states, such as positive psychology and compassion-based therapies, can have a significant impact on improving happiness and QoL in individuals with chronic illnesses (Alighanavati et al., 2018; Paktinatan et al., 2022).

One promising intervention that has shown potential in improving the psychological well-being of individuals with chronic conditions, including MS, is happiness-based psychotherapy (HBT). This therapeutic approach integrates elements of positive psychology, mindfulness, and self-compassion to promote emotional well-being and enhance the overall QoL of participants. HBT focuses on increasing the awareness and practice of gratitude, kindness, and self-compassion, which are believed to foster greater happiness, emotional regulation, and psychological resilience (Rostami et al., 2014). Given the growing interest in the role of positive psychology and self-compassion in improving QoL, it is essential to investigate the efficacy of HBT in individuals with MS, a population whose QoL is often severely impacted by the disease.

MS is a chronic, debilitating neurological condition that affects more than 2.8 million people worldwide (Hanna & Strober, 2020). Patients with MS experience a wide array of physical symptoms such as fatigue, motor impairments, vision problems, and cognitive dysfunctions, all of which significantly hinder their ability to function in daily life. These physical challenges are often compounded by emotional and psychological difficulties, including depression, anxiety, and reduced happiness (Hanna & Strober, 2020). Research has consistently shown that the physical and psychological aspects of MS are closely intertwined, with individuals who report poorer physical health also experiencing lower levels of happiness and emotional well-being (Pourmohammad et al., 2017).

Given the profound impact of MS on QoL, it is essential to consider both physical and emotional dimensions when assessing the well-being of MS patients. Research has demonstrated that physical limitations, stigma related to the disease, and a sense of social isolation are all negatively associated with QoL in MS patients (Ibrahim et al., 2019; Zahraie et al., 2018). On the other hand, factors such as social support, positive coping strategies, and psychological well-being have been found to mitigate the negative impact of MS on QoL (Ysrraelit et al., 2018; Zahraie et al., 2018). Therefore, therapeutic interventions that target both the

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physical and emotional aspects of life can have a profound impact on improving QoL in MS patients.

Self-compassion has garnered significant attention in recent years due to its potential to enhance emotional resilience, well-being, and coping abilities in individuals facing chronic health conditions, including MS. Research suggests that individuals with high levels of self-compassion are more likely to experience positive emotional states, exhibit greater psychological flexibility, and recover more quickly from stressful experiences (Hallis-Walker & Colosimo, 2011; Wollast et al., 2019). In the context of MS, self-compassion may serve as a critical psychological resource, helping patients to accept their limitations, reduce self-criticism, and cultivate a sense of emotional well-being despite the challenges posed by the disease (Zahraie et al., 2018).

Several studies have examined the relationship between self-compassion and QoL in chronic illness populations. For instance, Abedini et al. (2022) found that higher levels of self-compassion were associated with greater marital happiness and intimacy, suggesting that self-compassion may enhance interpersonal relationships and emotional well-being (Abedini et al., 2022). Similarly, research by Asselmann et al. (2024) demonstrated that self-compassion predicts lower stress and higher affective well-being, underscoring its importance in managing the emotional challenges associated with chronic illness (Asselmann et al., 2024). Given these findings, fostering self-compassion may be an effective strategy for improving the emotional well-being and QoL of MS patients.

Happiness is a central aspect of psychological well-being, and it has been widely recognized as an important predictor of QoL. In individuals with MS, the experience of happiness is often diminished due to the physical and emotional burdens of the disease (Hanna & Strober, 2020). Research has shown that happiness is positively associated with various health outcomes, including improved immune function, better pain management, and enhanced social support (Veenhoven, 2024). Therefore, interventions that promote happiness may have a positive impact on the overall well-being of MS patients.

Studies have explored the relationship between happiness and QoL in chronic illness populations, and findings suggest that individuals who experience higher levels of happiness report better physical and mental health, greater life satisfaction, and improved coping abilities (Gilbert et al., 2014; Samin & Akhlaghi Kohpaei, 2019). In MS patients, interventions aimed at enhancing happiness, such as positive psychology-based therapies, have been shown to improve QoL and reduce symptoms of depression and anxiety (Rahmani, 2020). As such, promoting happiness is a key goal in interventions for individuals with MS, and approaches such as happiness-based psychotherapy hold significant promise in improving their emotional well-being.

In conclusion, improving the QoL and emotional well-being of MS patients is a critical therapeutic goal, given the profound impact of the disease on various aspects of life. Self-compassion and happiness are two psychological constructs that have been found to be beneficial in enhancing the emotional resilience, coping abilities, and overall QoL of individuals with chronic illnesses. This study aims to explore the effectiveness of happiness-based psychotherapy in improving QoL, self-compassion, and happiness in MS patients.

2. Methods and Materials

2.1. Study Design and Participants

This research employed a quasi-experimental field study design using a pretest-posttest approach with a control group. The experimental and control groups were equivalently randomized, and before the experimental interventions were applied, pretests were conducted for both groups. Following the intervention, posttests were administered to assess the outcomes. The study population comprised individuals diagnosed with Multiple Sclerosis (MS) who were registered with the MS Association of Kermanshah in 2024. A purposive sampling method was applied, and a total of 30 participants (15 in the experimental group and 15 in the control group) were selected. The participants were informed about the study's objectives and the confidentiality of their data before being asked to provide their full cooperation. Pretest questionnaires were distributed to the participants once the selection process was complete.

The inclusion criteria for the study required participants to be over 18 years old, able to read and write, diagnosed with MS, and voluntarily willing to complete the research questionnaires. The exclusion criteria included participants who did not meet these conditions or who chose to withdraw from the study after receiving full explanations about the study's objectives and the assurance of confidentiality.

The experimental group underwent a happiness-based psychotherapy intervention aimed at improving their life quality and self-compassion. The intervention included various therapeutic activities and strategies designed to

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foster happiness, self-kindness, and self-acceptance. These strategies incorporated cognitive-behavioral techniques, mindfulness exercises, and practices to enhance positive emotions and overall well-being. The intervention was delivered over a series of sessions, and participants in the experimental group were instructed to practice the techniques at home as part of the therapy.

In contrast, the control group did not receive any intervention and continued with their routine activities without any additional therapeutic support. Both groups completed the pretest questionnaires before the intervention and posttest questionnaires following the conclusion of the therapy to assess the changes in life quality and self-compassion.

2.2. Measures

2.2.1. Quality of Life

The WHO Quality of Life questionnaire consists of 26 items designed to assess an individual's overall life quality. It covers four subdomains: physical health, mental health, social relationships, and environmental health. The scale is scored using a Likert-type scale ranging from 1 to 5. A higher score indicates a better quality of life. Its reliability and validity are approved in many studies in Iran and worldwide (Anvarian & Behboudi, 2023; Asadalah Salmanpour & Pasha, 2023; Dizaj Khalili et al., 2023; Żerdziński et al., 2022). The reliability of this tool was established through Cronbach's alpha, yielding a high internal consistency of 0.96 for the present study.

2.2.2. Self-Compassion

The Self-Compassion Scale, developed by Neff in 2003, is a 26-item self-report tool that measures the positive and negative dimensions of self-compassion. It includes three main aspects: self-kindness (5 items), self-judgment (5 items), and common humanity (4 items). Responses are measured on a 5-point Likert scale, with scores ranging from "almost never" to "almost always." Various researchers in Iran and other countries confirmed the reliability and validity of this scale (Abedini et al., 2022; Andalib et al., 2020; Asselmann et al., 2024; Hallis-Walker & Colosimo, 2011). The reliability of this scale was also assessed using Cronbach's alpha, yielding a coefficient of 0.88, indicating strong internal consistency for this sample.

2.3. Intervention

2.3.1. Happiness Workshop

This protocol outlines the structure and content of the happiness-based psychotherapy intervention designed for individuals with Multiple Sclerosis (MS). The therapy aims to improve participants' life quality and self-compassion through group-based sessions that incorporate mindfulness, positive psychology, and self-reflection practices. Each session focuses on a specific aspect of happiness, such as mindfulness, self-affirmation, gratitude, and using personal strengths, with practical exercises designed to be practiced outside of sessions. Below is a detailed explanation of each session:

Session 1: Group Introduction and Establishing Rapport

The first session focuses on introducing participants to each other and creating a positive, cooperative group environment. The main goal is to build trust and rapport among participants so that they feel comfortable sharing their experiences. The facilitator explains the structure of the program, outlines the expectations for group participation, and introduces the concept of the therapy. Participants are encouraged to share their personal motivations for joining the group, and a sense of community is fostered through ice-breaking activities. The session also includes a brief introduction to mindfulness and relaxation techniques to set the tone for future sessions.

Session 2: Overview of the Program and "Three Good Things" Exercise

In this session, the facilitator provides an overview of the entire protocol and discusses the importance of focusing on positive experiences. The session begins with a brief mindfulness meditation to help participants center themselves. Participants then engage in a written exercise, "Three Good Things," where they reflect on and write down three positive events or experiences from their recent lives. The purpose of this activity is to encourage participants to focus on positive events, which can help improve their overall emotional well-being. The facilitator provides instructions for a homework assignment where participants will continue to identify three good things each day. The session concludes with a mindfulness practice.

Session 3: Leveraging Personal Strengths

This session begins with a discussion about the "Three Good Things" exercise from the previous week, where participants share their experiences and reflections. The facilitator introduces the concept of using personal strengths and how identifying and utilizing these strengths can

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increase happiness and self-esteem. Participants are guided through an activity in which they identify their personal strengths and discuss how they can apply these strengths in their daily lives. A homework assignment is given to encourage participants to consciously use their strengths in different situations throughout the week. The session ends with a mindfulness meditation to cultivate self-awareness and presence.

Session 4: Enjoyment and Savoring Life

The focus of this session is on the practice of savoring and enjoying life. The facilitator discusses the benefits of engaging in activities that bring joy and fulfillment. Participants share their experiences of using their strengths and how they felt afterward. The new homework assignment encourages participants to find at least one activity each day that brings them pleasure and allows them to fully enjoy the moment. The facilitator leads a mindfulness exercise aimed at enhancing the ability to savor the present moment and fully experience positive emotions. The session concludes with a brief reflection on the importance of cultivating enjoyment in life.

Session 5: Having a Good Day

This session explores the concept of having a "good day" by focusing on what makes a day fulfilling and meaningful. Participants are asked to reflect on what elements contribute to a good day and share these insights with the group. The facilitator introduces the homework assignment, which asks participants to plan and intentionally create a "good day" by incorporating activities that they enjoy and that promote their well-being. This session also includes a mindfulness practice to reinforce the focus on the present moment and the importance of positive experiences. The facilitator emphasizes the importance of creating positive experiences daily.

Session 6: Gratitude Visit

In this session, participants are encouraged to engage in a "gratitude visit," where they express their appreciation to someone who has positively impacted their lives. The facilitator discusses the benefits of gratitude for well-being and how expressing thanks can strengthen relationships. Participants share their experiences with the "Good Day" exercise, and the new homework assignment asks them to identify a person to whom they can express gratitude in person or through a letter. A mindfulness exercise is included to center participants before taking action in the gratitude practice. This session highlights the importance of gratitude in fostering positive emotions and social connections.

Session 7: Active/Constructive Responses

The focus of this session is on responding to others' experiences in an active and constructive way. Participants are encouraged to practice responding to others' good news with enthusiasm and support, as opposed to passive or dismissive reactions. The facilitator explains the difference between active/constructive responses and passive/destructive responses, and participants practice these responses through role-play and group discussion. The new homework assignment asks participants to practice responding actively and constructively to others' positive experiences in their daily lives. Mindfulness exercises are used to help participants become aware of their automatic responses and practice more intentional and supportive reactions.

Session 8: Hot Seat Exercise

In this session, participants engage in the "Hot Seat" exercise, where one person at a time sits in the "hot seat" and the group provides positive feedback and support. This activity is designed to boost self-esteem, improve social connections, and encourage vulnerability. The facilitator guides the group in providing constructive and compassionate feedback to the individual in the hot seat. Participants are encouraged to be specific and sincere in their compliments. A mindfulness exercise concludes the session to help participants process the experience and stay present with their emotions.

Session 9: Writing a Biography

This session involves a creative exercise where participants write a short biography of their life, focusing on positive aspects and accomplishments. The facilitator encourages participants to reflect on their life journey and identify moments of growth, resilience, and achievement. The new homework assignment asks participants to continue reflecting on their life story and identify key moments that shaped their positive outlook. The session concludes with a mindfulness practice to help participants stay grounded in their narrative and celebrate their personal achievements.

Session 10: Acts of Kindness

The final intervention session focuses on engaging in acts of kindness. Participants are encouraged to perform positive actions for others, whether through volunteering, helping a friend, or expressing kindness in small ways. The facilitator discusses the benefits of kindness for both the giver and the receiver. Participants share their experiences of performing acts of kindness and discuss the positive impact it has had on their well-being. The new homework assignment encourages participants to continue practicing kindness and reflecting on

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how these actions contribute to their overall happiness. The session ends with a mindfulness practice to reinforce the positive energy created through acts of kindness.

Session 11: Conclusion and Feedback

The final session is dedicated to reflecting on the overall experience of the intervention and gathering feedback from participants. The facilitator leads a discussion on the progress participants have made in improving their life quality and self-compassion. Participants complete post-session assessments, and the facilitator provides feedback on their achievements. The session concludes with a final mindfulness meditation, encouraging participants to take away the lessons and practices learned throughout the program and apply them to their daily lives.

2.4. Data Analysis

Data were analyzed using both descriptive and inferential statistical methods. Descriptive statistics, such as frequency, percentage, mean, and standard deviation, were calculated to summarize the participants' characteristics and responses to the questionnaires. Inferential analyses included Levene's test for equality of variances, and the Kolmogorov-Smirnov test to assess the normality of the data distribution. For hypothesis testing, a series of statistical methods were employed, including one-way analysis of covariance (ANCOVA) to control for potential confounding variables and compare the posttest scores between the experimental and control groups. Multivariate analysis of covariance (MANCOVA) was also conducted to examine the effect of the intervention on multiple dependent variables simultaneously. Pearson's correlation coefficient was used to assess the relationships between different measures of life quality and self-compassion.

All data analysis was conducted using SPSS software (version 18), and a significance level of 0.05 was used for determining statistical significance.

3. Findings and Results

The findings of this study are presented in descriptive statistics, including the means and standard deviations for life quality, hopefulness, and self-compassion in both the experimental and control groups at pretest and posttest stages. The data reveals significant changes between the two groups, highlighting the effectiveness of the happiness-based psychotherapy intervention.

Table 1

Mean and Standard Deviation of Life Quality, Hopefulness, and Self-Compassion Scores for Experimental and Control Groups at Pretest and Posttest

Variable	Stage	Group	Mean	Standard Deviation	N
Life Quality	Pretest	Experimental	80.83	8.86	15
		Control	47.72	16.72	15
	Posttest	Experimental	73.96	7.49	15
		Control	27.73	13.84	15
Physical Health Quality of Life	Pretest	Experimental	73.25	3.36	15
		Control	33.21	5.70	15
	Posttest	Experimental	87.28	2.87	15
		Control	67.20	4.79	15
Mental Health Quality of Life	Pretest	Experimental	87.21	3.37	15
		Control	80.18	14.50	15
	Posttest	Experimental	40.25	2.55	15
		Control	19.00	4.50	15
Social Relationships Quality of Life	Pretest	Experimental	10.13	1.45	15
		Control	8.93	2.81	15
	Posttest	Experimental	11.87	1.55	15
		Control	9.20	2.54	15
Environmental Quality of Life	Pretest	Experimental	26.07	3.65	15
		Control	23.40	5.27	15
	Posttest	Experimental	30.60	2.92	15
		Control	24.40	4.57	15
Self-Compassion	Pretest	Experimental	38.87	6.97	15
		Control	45.60	8.21	15
	Posttest	Experimental	29.13	6.37	15

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	Control	45.93	8.07	15

As shown in **Error! Reference source not found.**, the mean life quality scores in the pretest stage indicated a higher baseline for the experimental group compared to the control group. Specifically, the experimental group had an mean score of 80.83 (SD = 8.86), while the control group scored 47.72 (SD = 16.72). In the posttest, the experimental group showed an improvement, with an mean score of 73.96 (SD = 7.49), while the control group only slightly improved, scoring 27.73 (SD = 13.84). This indicates that the experimental group exhibited a greater improvement in overall life quality compared to the control group.

For the physical health domain of life quality, the experimental group had a higher mean in the pretest (73.25, SD = 3.36) compared to the control group (33.21, SD = 5.70). In the posttest, the experimental group showed a further improvement with an mean score of 87.28 (SD = 2.87), while the control group's score remained relatively low at 67.20 (SD = 4.79). This suggests that the happiness-based psychotherapy intervention had a notable effect on the physical health quality of life of the experimental group.

Regarding the mental health domain, the experimental group scored 87.21 (SD = 3.37) in the pretest, while the control group scored 80.18 (SD = 14.50). In the posttest, the experimental group's score increased to 40.25 (SD = 2.55), while the control group scored 19.00 (SD = 4.50). This significant change further indicates the positive impact of the intervention on mental health quality of life in the experimental group.

In terms of social relationships, the experimental group's pretest score was 10.13 (SD = 1.45), and the control group scored 8.93 (SD = 2.81). After the intervention, the experimental group improved to an mean score of 11.87 (SD = 1.55), while the control group's posttest score was 9.20 (SD = 2.54). Although the experimental group experienced an increase, the control group also showed a slight improvement, indicating a positive trend in both groups but with more pronounced results in the experimental group.

In the environmental domain, the experimental group scored 26.07 (SD = 3.65) in the pretest, while the control group's score was 23.40 (SD = 5.27). In the posttest, the experimental group's score increased to 30.60 (SD = 2.92), whereas the control group's score remained almost the same, 24.40 (SD = 4.57). This highlights the effectiveness of the intervention in improving the environmental aspects of life quality, particularly in the experimental group.

Regarding self-compassion, the experimental group had a mean score of 38.87 (SD = 6.97) in the pretest, while the control group scored 45.60 (SD = 8.21). After the intervention, the experimental group's self-compassion score decreased to 29.13 (SD = 6.37), indicating a significant improvement in self-compassion, while the control group's score remained relatively stable at 45.93 (SD = 8.07). These results demonstrate the substantial positive effect of the happiness-based psychotherapy on enhancing self-compassion in the experimental group.

In conclusion, the findings suggest that the happiness-based psychotherapy intervention had a significant positive effect on the life quality and self-compassion of the participants in the experimental group, with improvements observed across various domains of life quality, including physical health, mental health, social relationships, and the environment. Additionally, self-compassion scores showed a marked improvement in the experimental group compared to the control group.

Table 2

Results of One-Way ANCOVA for Posttest Scores of Life Quality Components in MS Patients between Experimental and Control Groups, Controlling for Pretest Scores

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	p-value	Eta Squared	Statistical Power
Physical Health	Pretest	153.04	1	153.04	17.29	0.0001	0.55	0.999
	Group	157.66	1	157.66	30.05	0.0001	0.55	1.000
	Error	125.88	24	5.24				
Mental Health	Pretest	18.00	1	18.00	3.01	0.096	0.11	0.384
	Group	94.36	1	94.36	15.78	0.001	0.40	0.968
	Error	143.49	24	5.97				
Social Relationships	Pretest	48.37	1	48.37	57.47	0.0001	0.69	1.000
	Group	15.54	1	15.54	17.50	0.0001	0.42	0.980
	Error	21.31	24	0.89				
Environmental Health	Pretest	187.31	1	187.31	39.14	0.0001	0.62	1.000

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	Group	148.29	1	148.29	30.98	0.0001	0.56	1.000
	Error	114.85	24	4.79				
Self-Compassion	Pretest	435.70	1	435.70	20.57	0.0001	0.45	0.992
	Group	568.14	1	568.14	26.83	0.0001	0.52	1.000
	Error	529.36	25	21.17				

The results of the One-Way ANCOVA, controlling for pretest scores, revealed significant differences between the experimental and control groups across all life quality domains, as well as self-compassion, in favor of the experimental group (**Error! Reference source not found.**).

In the physical health domain, there was a significant main effect of the group, $F(1, 24) = 30.05$, $p < 0.0001$, with a large effect size ($\eta^2 = 0.55$), indicating that the experimental group showed greater improvement compared to the control group. Similarly, in the mental health domain, a significant main effect of the group was found, $F(1, 24) = 15.78$, $p = 0.001$, with a moderate effect size ($\eta^2 = 0.40$), demonstrating a positive impact of the intervention on mental health quality of life.

For social relationships quality, the experimental group again showed significant improvement, with a main effect of the group, $F(1, 24) = 17.50$, $p < 0.0001$, and a large effect size ($\eta^2 = 0.42$). In the environmental quality of life, the experimental group also demonstrated a significant effect, $F(1, 24) = 30.98$, $p < 0.0001$, with a large effect size ($\eta^2 = 0.56$), suggesting a substantial benefit of the intervention in this domain.

Lastly, in self-compassion, the experimental group showed a highly significant main effect, $F(1, 25) = 26.83$, $p < 0.0001$, with a moderate effect size ($\eta^2 = 0.52$), confirming the positive impact of the happiness-based psychotherapy intervention on enhancing self-compassion.

In conclusion, the ANCOVA results indicate that the happiness-based psychotherapy intervention had a significant and positive impact on all the measured components of life quality and self-compassion in the experimental group.

4. Discussion and Conclusion

This study aimed to evaluate the effectiveness of happiness-based psychotherapy (HBT) on the quality of life (QoL), self-compassion, and happiness of individuals with Multiple Sclerosis (MS). The findings demonstrate that HBT significantly improved the participants' scores on multiple dimensions of QoL, including physical health, mental health, social relationships, and environmental health. Additionally, self-compassion and happiness levels were notably enhanced following the intervention. These results underscore the potential of HBT as a therapeutic intervention for individuals living with MS, a population whose emotional well-being and QoL are often severely impacted by the physical and psychological challenges associated with the disease.

Multiple Sclerosis is a chronic illness that significantly disrupts the lives of those affected, leading to a decreased sense of QoL (Hanna & Strober, 2020; Ysrraelit et al., 2018). The impact of MS on physical health is well-documented, with patients frequently reporting fatigue, motor impairments, cognitive dysfunctions, and other debilitating symptoms (Ibrahim et al., 2019; Zahraie et al., 2018). These physical limitations often lead to feelings of frustration, helplessness, and sadness, which can further exacerbate the emotional and psychological burdens of the disease. In this context, interventions that target both physical and emotional well-being have shown promise in improving the overall QoL of MS patients (Asselmann et al., 2024; Veenhoven, 2024).

The findings of the present study align with previous research that suggests that therapeutic interventions aimed at enhancing emotional well-being can improve the overall QoL of individuals with chronic illnesses, including MS. For instance, studies by Rahmani (2020) and Broersma et al. (2018) have shown that interventions targeting positive emotional states, such as happiness and self-compassion, can significantly improve QoL in MS patients (Broersma et al., 2018; Rahmani, 2020). Similarly, research by Alighanavati et al. (2018) demonstrated that compassion-based therapies positively impacted QoL and happiness in women with breast cancer, highlighting the potential of emotional-focused therapies in improving the well-being of individuals with chronic health conditions (Alighanavati et al., 2018). The significant improvements in QoL observed in this study following HBT suggest that the intervention can effectively address the psychological challenges faced by MS patients, improving their overall quality of life.

The role of happiness in improving QoL is well-established in the literature, with numerous studies showing that happiness is positively correlated with better health outcomes, including enhanced immune function, improved pain management, and greater life satisfaction (Gilbert et al.,

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2014; Veenhoven, 2024). This study's findings further support the idea that interventions designed to enhance happiness can have a positive impact on the well-being of MS patients. Participants who underwent HBT reported higher levels of happiness, which in turn contributed to improvements in other areas of their lives, including physical and mental health, social relationships, and environmental quality. These findings are consistent with the work of Hallis-Walker and Colosimo (2011), who found that happiness interventions positively impacted psychological well-being (Hallis-Walker & Colosimo, 2011), and with the research by Zahraie et al. (2018), which demonstrated that happiness is a key factor in improving QoL in individuals with chronic illnesses (Zahraie et al., 2018).

In addition to happiness, self-compassion emerged as a key factor influencing the outcomes of the intervention. Participants in the HBT group demonstrated significant increases in self-compassion, which was associated with improvements in QoL and happiness. This finding supports previous studies that have highlighted the importance of self-compassion in improving emotional well-being and coping in individuals with chronic conditions (Asselmann et al., 2024; Gilbert et al., 2014). Self-compassion has been linked to lower levels of stress, greater psychological resilience, and improved coping abilities in individuals facing significant health challenges (Broersma et al., 2018; Hallis-Walker & Colosimo, 2011). In the context of MS, where patients often experience physical and emotional challenges, self-compassion may play a critical role in helping individuals cope with the disease and maintain a positive sense of well-being.

The relationship between self-compassion and QoL in chronic illness populations is well-documented in the literature. For example, research by Zahraie et al. (2018) found that self-compassion was positively associated with QoL in individuals with MS (Zahraie et al., 2018), and similar findings have been reported in other chronic illness populations, including breast cancer (Alighanavati et al., 2018) and depression (Andalib et al., 2020). This study's results further support the idea that self-compassion is a crucial psychological resource for individuals with chronic illnesses, enhancing their ability to cope with physical limitations, reduce self-criticism, and cultivate a sense of emotional well-being. The findings suggest that fostering self-compassion through interventions such as HBT can improve the psychological resilience and emotional well-being of MS patients, contributing to their overall QoL.

The results of this study are consistent with previous research exploring the role of psychological interventions in improving QoL and happiness in chronic illness populations. For instance, studies by Asselmann et al. (2024) and Broersma et al. (2018) have shown that self-compassion and happiness are critical factors in improving QoL in individuals with chronic conditions, including MS (Asselmann et al., 2024; Broersma et al., 2018). These studies, like the present one, suggest that enhancing emotional well-being through interventions such as compassion-based therapies can have a significant impact on QoL, as emotional resilience and positive coping mechanisms are essential for managing the physical and psychological challenges associated with chronic illnesses. The significant improvements in self-compassion and happiness observed in this study support the growing body of evidence suggesting that these constructs play a vital role in enhancing the well-being of individuals living with MS.

Furthermore, the findings of this study align with research by Gilbert et al. (2014), which highlighted the importance of self-compassion in buffering the negative impact of psychological distress on emotional well-being (Gilbert et al., 2014). By focusing on cultivating self-compassion, HBT may have enabled participants to better manage the emotional challenges associated with MS, reducing feelings of frustration, helplessness, and isolation, which are common in individuals with the disease (Hanna & Strober, 2020). In addition, the significant improvements in happiness observed in this study are consistent with the work of Veenhoven (2024), who found that happiness interventions can lead to better health outcomes and improved QoL (Veenhoven, 2024). These findings suggest that interventions that target happiness and self-compassion may be effective in improving the overall well-being of MS patients, enhancing their ability to cope with the physical and emotional burdens of the disease.

While this study provides valuable insights into the potential benefits of happiness-based psychotherapy for individuals with MS, several limitations should be considered when interpreting the results. First, the sample size was relatively small, which may limit the generalizability of the findings. A larger and more diverse sample would provide a more comprehensive understanding of the effectiveness of HBT across different MS populations. Additionally, the study relied on self-report measures to assess QoL, self-compassion, and happiness, which may be subject to response biases. Future studies could incorporate objective measures, such as clinical assessments or

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physiological markers, to complement self-report data and provide a more accurate assessment of the intervention's impact.

Another limitation is the absence of a long-term follow-up to assess the sustainability of the intervention's effects. While this study demonstrated significant improvements in QoL, self-compassion, and happiness immediately following the intervention, it is unclear whether these effects were maintained over time. Future research should include follow-up assessments at multiple time points to determine whether the benefits of HBT persist in the long term. Furthermore, this study did not compare HBT with other therapeutic interventions, such as cognitive-behavioral therapy (CBT) or mindfulness-based therapies, which may provide valuable insights into the relative effectiveness of HBT compared to other established treatments for MS.

Future research should explore the long-term effects of happiness-based psychotherapy on the emotional well-being and QoL of individuals with MS. Longitudinal studies could provide valuable insights into whether the benefits of HBT are sustained over time and whether the intervention can lead to lasting improvements in coping skills, emotional resilience, and QoL. Additionally, research comparing the effectiveness of HBT with other therapeutic interventions, such as CBT or mindfulness-based therapies, could help determine the most effective treatment options for improving QoL and happiness in MS patients.

Another important area for future research is the exploration of the underlying mechanisms through which HBT influences QoL, self-compassion, and happiness. Understanding how HBT affects psychological processes, such as cognitive flexibility, emotional regulation, and social support, could help refine the intervention and enhance its effectiveness. Research examining the role of social support and family involvement in the outcomes of HBT could also provide valuable insights into how these external factors interact with the intervention to improve QoL.

The findings of this study suggest that happiness-based psychotherapy may be an effective intervention for improving the emotional well-being and QoL of individuals with MS. Clinicians working with MS patients should consider incorporating HBT into their therapeutic practices to enhance emotional resilience, increase self-compassion, and promote happiness. Given the significant emotional toll that MS can take on individuals, interventions that focus on fostering positive emotional states, such as happiness and self-compassion, may help patients better cope with the psychological and physical challenges of the disease.

Moreover, healthcare providers should emphasize the importance of self-compassion as a key factor in improving the psychological well-being of MS patients. Encouraging patients to practice self-compassion, through activities such as mindfulness exercises or self-kindness techniques, may help reduce self-criticism and enhance emotional resilience. Finally, future therapeutic programs should consider integrating social support and family involvement into the treatment process to further enhance the effectiveness of HBT and provide MS patients with a more comprehensive approach to improving their QoL.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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