**EMOTIONAL PROCESSING AND MULTIPLE SCLEROSIS; A REVIEW**

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1.0 Introduction.

Multiple Sclerosis (MS) is a degenerative disease that affects the central nervous system (Brassington andMarsh,1998) with onset predominantly between the ages of twenty and forty- five years old (Amato, Ponziani, Rossi, Liedl, Stefanile and Rossi,2001). MS affects around 100, 000 people in the UK (MS Society, 2012). Almost twice as many women as men are diagnosed with MS (MS Society, 2012). MS is the most common non traumatic disabling neurological disorder among adults under the age of sixty (Sweet Vandermorris, 2011). Relapsing remitting MS is the most common type of MS, affecting around eighty-five per cent of all people diagnosed with MS. It means that symptoms appear (a relapse), and then fade away, either partially or completely. Secondary progressive MS is a stage of MS which can come after relapsing remitting MS. It means there is a persistent build-up of disability, completely independent of any relapses. Primary progressive MS affects about ten to fifteen per cent of people diagnosed with MS. Symptoms gradually get worse over time, rather than appearing as sudden attacks (relapses) (MS Society, 2012).

2.0. Multiple Sclerosis and Stress .

Research suggests that stress tends to be viewed as a process in which demands of a ‘stressor’ overwhelm the coping capacity of an individual and there are psychological or biological consequences (Mohr, 2007). There are multiple possible stressors that could lead to stressful experiences or stress related illnesses for PwMS, these include diagnostic uncertainties, the unpredictability of MS, the lack of visible symptoms (which may cause PwMS to query their own experiences), the visibility of the symptoms, constant adjustment and readjustment to changes, effects on occupational functioning which can lead to financial strains, degrees of cognitive impairment ,loss of control e.g. bladder dysfunction and coping with disease modifying treatment ( MS Society of Canada, 2007). It is important to consider that there may be other stressors prior to diagnosis or stressors apparently unrelated to the illness, such as bereavement, family strains, job pressures etc. As the onset of the illness is predominantly between the ages of twenty and forty-five (Amato, Ponziani, Rossi, Liedl, Stefanile and Rossi, 2001) the illness is likely to affect the life course for PwMS, which can be particularly distressing and may include concerns about having children.

The period when a person with MS is diagnosed can be a very anxious time (Leary, Porter andThompson, 2005). There can be complications with confirming a diagnosis of MS, for example, someone may present with mild or vague neurological symptoms (Leary, Porter andThompson, 2005) and there may be no obvious signs of the illness (Brooks andMatson,1982). Confirming a diagnosis of MS may take time as investigations are done and other diagnosis are rejected (Johnson, 2003). The lack of diagnostic tests means uncertainty can be hard to resolve (Scolding, 2001). Some argue that clinicians may not confirm a diagnosis of MS at presentation of primary symptoms because they consider an early diagnosis of limited value for someone with MS (Janssens, Boer, Kalkers, Passchier and Doorn, 2004). Historically and currently lengthy delays in diagnosis can result in PwMS experiencing distress. If the onset is gradual, patients describe a feeling of uncertainty then relief when they have a diagnosis (Westbrook and Viney, 1982). Yet, Wineman, Schwetz, Goodkin and Rudick (1996) argue that illness uncertainty allows people to be hopeful about long-term outcomes e.g. they may live an average life span with a benign disease. Though, for some PwMS diagnosis equals relief that their symptoms are not due to a fatal illness (Edwards, Barlow and Turner, 2008).

 Even when one comes to terms with the life-changing diagnosis PwMS face confusion in assessing the impact of MS on their lives, there is uncertainty about whether to play ‘the sick role’ or the ‘impaired role’ and then the illness includes exacerbations and remissions, plus there may be confusion about how sick they are or what activities they can do without getting sicker (Brooks and Matson, 1982). The course of MS is uncertain with some PwMS showing a steady, often rapid, deterioration, a small quantity having a benign course with limited symptoms and most having relapse-remitting course noticeable by periodic exacerbations that remit partially or fully (Mohr, Dick, Russo, Pinn, Boudewyn, Likosky and Goodwin,1999). Research indicates that uncertainty in MS is a prominent source of stress and therefore an individual with MS is at high risk of emotional difficulties (McNulty, Livneh andWilson, 2004). Lazarus and Folkman (1984) suggested that ambiguity and uncertainty can lead to stress and inhibit effective coping (McNulty, Livneh andWilson, 2004). The theory of Lazarus and Folkman (1984) has led many to view uncertainty as one of the greatest challenges in the adaptation to chronic illness (McNulty, Livneh andWilson, 2004). Yet, there are multiple other possible stressors for PwMS.

Fatigue in MS has been documented as one of the most disabling and common features of the disease (Baskshi, 2003, Schwid, Covington, Segal andGoodman,2002, Pitton-Vouyovitch, Debouverie, Guillemin, Vandenberghe, Anxionnat andVespignanai,2006). Fatigue in MS that is clinically significant has been defined as a ‘degree of impairment sufficient to impair functional activities or quality of life’ (Baskshi, 2003, p: 220). Above weakness, spasticity, motor problems, bowel and bladder problems, fatigue has been described as the one particularly disabling symptom of MS (Bakshi, 2003). A review of fatigue and MS by Bakshi (2003) highlights how fatigue can significantly affect many areas of life for PwMS e.g. employment, socialization, adaption to disease and other measures of activities of daily living. However, in critique of this most studies that have researched fatigue in MS have used self-report questionnaires which are limited due to being based on subjective responses (Schwid, Covington, Segal and Goodman, 2002). Pitton-Vouyovitch, Debouverie, Guillemin, Vandenberghe, Anxionnat andVespignanai (2006) administered a French Valid version of the Fatigue Impact scale (EMIF-SEP) and the SF-36 to two hundred and thirty seven PwMS and found significant correlations between fatigue in MS and higher disability and greater fatigue and quality of life impairment. Ford, Trigwell and Johnson (1998) researched whether sixty-eight consecutive out-patients with MS differentially experience mental and physical fatigue. They found that mental fatigue correlated with depression and anxiety scores, though there was no significant correlation between physical fatigue and anxiety and depression scores. This research in fatigue and MS indicates how fatigue in MS could be a possible stressor for PwMS due to the disruption to one’s life.

Research indicates that pain is a common challenge for PwMS (Ede, Gibbons, Chwastiak and Bombardier, 2003). Southerst, Labrecque and Mior (2012) reviewed the MS literature and found that the prevalence and severity of pain for PwMS was considerable. The estimated prevalence of pain for PwMS varies between thirty percent and ninety percent (Svendsen, Jensen, Overvad, Hansen, Koch-Henriksen and Bach, 2003). Sixty-five percent of PwMS have been found to have clinically significant pain (Kerns, Kassirer and Otis, 2002). Experiences of pain will of course vary for each individual at different stages of the illness and even possibly within each hour of each day. Some PwMS may experience chronic pain which may include joint pain and other musculoskeletal or mechanical pain problems that develop as a function of spasticity and deconditioning associated with MS (Kerns, Kassirer and Otis, 2002) other PwMS may experience acute pain which may include painful optic neuritis. Ede, Osbourne, Hanley, Jensen and Kraft (2006) researched how pain problems for PwMS interfere with common daily activities and experiences. Using the Brief Pain Inventory Interference scale the researchers found that the highest level of pain interference was reported for sleep, recreational activities and work in and outside of the home.

Furthermore, Hadjimichael, Kerns, Rizzo, Cutter and Vollmer (2007) found that the impact of pain severity on daily life, their work, mood, recreational activities and enjoyment of life was entirely evident for PwMS. Svendsen, Jensen ,Overvad, Hansen, Koch-Henriksen and Bach (2003) discovered that pain intensity, treatment requirement, number of pain sites and the influence of pain on daily life were higher for PwMS compared to a general population group. Research by Rae-Grant, Eckert, Bartz and Reed (1999) indicates that sensory symptoms are common in MS. This research indicates how pain for PwMS could be a possible stressor that could cause stress for PwMS.

The rate of unemployed PwMS remains high and the employment dilemma for PwMS is complex (Johnson, Yorkston, Klasner, Keuhn, Johnson and Amtmann, 2004). Many PwMS due to their illness may not be able to work full-time, this brings possible financial difficulties which can be a profound stressor. Malcomson, Lowe-strong andDunwoody (2008) used thematic analysis to explore the personal narratives of thirteen PwMS in two focus group discussions. With regards to employment, several of the PwMS had to alter their employment situation due to MS. One person due to his mobility had to work part-time, this was very difficult for him as work was very important to him and gave him a sense of purpose each day. Many PwMS face a difficult choice between whether to struggle to maintain employment or face early retirement on disability (Smith and Arnett, 2005). Johnson, Yorkston, Klasner, Keuhn, Johnson and Amtmann (2004) carried out semi-structured interviews with fourteen women and two men with MS and found that the consequences for PwMS of changing jobs or unemployment appeared stressful and were considered to be negative.

 Barriers to employment for PwMS can include mobility problems, fatigue and visual impairment (Johnson, Yorkston, Klasner, Kuehn, Johnson and Amtmann, 2004). Smith and Arnett (2005) found that in a sample of fifty PwMS physical disability and fatigue were important determinants of work status change and only a small percentage stated that cognitive symptoms were responsible for work status changes. Coming to terms with this could be a cause of stress and negative emotions.

Multiple Sclerosis is a disease that may cause significant disability ( Leary, Porter, Thompson, 2005).Some PwMS may experience only a few exacerbations of MS, though other PwMS may experience a steep decline of function and this may result in wheelchair dependency and possibly only able to transfer with assistance (Mullins, Cote, Fuemmeler, Jean, Beatty andPaul,2001). Ehde, Gibbons, Chwastiak and Bombardier (2003) highlight that PwMS may experience disability due to severity of pain. Lynch, Kroencke and Denney (2001) found that disability has also been found to be correlated with depression. Chronic illness and disability can often force an individual to face their mortality (Pakenham, 2008). Adjusting to the disease modifying treatment can be a cause of stress for PwMS.

The disability resulting from MS frequently leads to key interferences of the social roles of PwMS (Hakim, Bakhett, Bryant, Roberts, McIntosh-Michaelis, Spackman, Martin and McLellan,2000). The status of a person with disability causes one to experience often negative social attitudes and expectations (Roessler and Rumrill, 2003). Hakim, Bakhett, Bryant, Roberts, McIntosh-Michaelis, Spackman, Martin and McLellan (2000) studied the social impact of MS for three hundred and five PwMS. They found that MS has a profound impact on social roles for PwMS. Particularly severe disability and cognitive impairment are predictors of loss of employment, decline in the standards of living and withdrawal from leisure and social activities for PwMS (Hakim, Bakhett, Bryant, Roberts, McIntosh-Michaelis, Spackman, Martin and McLellan,2000) . Yet, in contrast to other studies the authors state that they did not find a high separation/divorce rate among the PwMS in their study. Mohr, Dick, Russo, Pinn, Boudewyn, Likosky and Goodwin (1999) studied the subjective experiences of fifty PwMS with relevance to the psychosocial consequences of MS. They found that deterioration and demoralization in relationships is significant for PwMS, for instance PwMS perceive a sense of personal inadequacy in their relationship and feel victimized by their partner. If someone’s social network has broken down this could have an impact on a person’s ability to retain employment (Roessler and Rumrill, 2003). Esmail, Munro, Gibson (2007) used in-depth semi-structured interviews to research the impact of MS on a couples sexual relationship. The researchers found that for women with MS uncertainties about their worthiness, attractiveness and identity affected their sexual relationships.

Sexual dysfunction is a common and often underestimated symptom of MS (Demirkiran, Sarica, Uguz, Yerdelen andAslan, 2006). The disease process with lesions affecting the spinal cord is mainly considered as the cause of sexual dysfunction for PwMS, another contributing cause is psychosocial factors (Demirkiran, Sarica, Uguz, Yerdelen and Aslan, 2006).Research shows that symptoms of sexual dysfunction in MS can include reduction of libido, orgasmic capacity and genital sensation, vaginal dryness and dyspareunia for females and erectile and ejaculatory dysfunction for males (Ghezzi, 1999). Zorzon, Zivadinov, Bragadin, Moretti, Masi, Nasuelli and Caszzato (2001) carried out a two year follow up study with ninety-nine PwMS and found that symptoms of sexual dysfunction rise in number and significance over time for PwMS. Sexual dysfunction is associated with considerably reduced quality of life for PwMS (Nortvedt, Rise, Myhr, Landtblom,Bakke and Nylamd, 2001).

Cognitive dysfunction is a substantial obstacle for PwMS (Mohr and Cox, 2001) and among the most devastating symptoms ( Johnson,2007).Common cognitive symptoms of MS ‘include deficits in complex attention, efficiency of information processing, executive functioning, processing speed and long-term memory’ (Chiaravolloti and Deluca, 2008,p: 1139). Similar to other symptoms of MS the impact of cognitive impairment for a PwMS can vary considerably through-out the course of the illness and vary from one person with MS to another person with MS. For some PwMS cognitive decline may be rapid, though for other PwMS there may be no cognitive impairment until late in their illness (Mohr and Cox, 2001).

Delvins et al coins the phrase ‘illness intrusiveness’ and consistently found that illness intrusiveness mediates the psychological adjustment to chronic illness (Mullins, Cote, Fuemmeler, Jean, Beatty and Paul, 2001). Illness intrusiveness offers a way to assess the impact of MS for PwMS (Shawaryn, Schiaffino, LaRocca and Johnston, 2002).

Not only does research highlight that there are multiple stressors that could possibly cause stress for PwMS, some research indicates that there is an association between stressful life events and an increased risk for MS exacerbation, inflammation and subsequent brain lesions for PwMS (Mohr and Pelletier, 2005). A meta-analysis of fourteen studies by Mohr, Hart, Julian, Cox and Pelletier (2004) found a clinically significant increase in risk of exacerbation of MS symptoms following stressful life events ,with a weighted average effect size of d=0.53(95% confidence interval 0.40 to 0.65, P<0.0001. Furthermore, Buljevac, Hop, Reedeker et al (2003) found that there were increased risk of exacerbations of MS in weeks after stressful events compared to weeks with no stressful events. The study involved seventy-three PwMS who rated stressful events each week and neurological examination for exacerbation of MS symptoms. Though this evidence is limited in being mainly correlational data it suggests that chronic stress may leave patients less able to regulate auto-reactive MS immune processes (Mohr, 2007). Yet, Brown, Tennant, Sharrock, Hodgkinson, Dunn and Pollard (2006) found that life event stress impacts to a small degree on MS relapse.

3.0.The link between stress and emotions

‘Psychological Stress should be considered part of a larger topic, the emotions’ (Lazarus,1993:p:10).When a person experiences stress or a stressful event occurs they will usually experience some undesirable emotions (Wang and Saudion, 2011).

3.1.MS and emotions

Emotional distress is higher in persons with MS than in other chronic illnesses (Gulick, 2001). Particularly, people with early phase MS seem to experience an extensive range of significant emotional distress (Landro, Sletvold and Celius, 2000). Research has also found that there is a higher prevalence of emotional disorders in patients with MS compared to other patient groups with comparable degrees of physical disability (Rao, Huber and Bornstein, 1992). These emotional disorders include most prominently depression (Whitlock andSiskind, 1980) and reports of mania (Kellner, Davenport, Post, andRoss, 1984 cited in Rao, Huber andBornstein,1992).

There is research to suggest that Alexthymia and MS are inter-related (Bodini, Mandarelli, Tomassini, Tarsitani, Pestalozza,Gasperini,Lenzi, Panacheri and Pozzilli, 2008). Alexthymia involves difficulties in identifying and describing emotions (Bodini, Mandarelli, Tomassini, Tarsitani, Pestalozza,Gasperini,Lenzi, Panacheri and Pozzilli, 2008).

Emotion regulation pathways in MS

Emotional disturbances are frequent and disabling conditions in multiple sclerosis; however, the underlying neuropsychological pathways are still a matter of ongoing research. People with MS face the task to make sense of the meaning of their condition resulting in a cascade of emotional experiences.

On the one hand, it has to be taken into account that the neurological lesions caused by the condition may affect the functioning of emotion regulation pathways. This may lead to malfunctioning communication between frontal (orbital, medial, ventrolateral prefrontal cortex) and subcortical (amygdale) regions. People who have intact cognition may experience secondary distress, confusion or a sense of not recognising their unusual emotional responses.  Emotional dysregulation was interpreted to be a result of malfunctioning connections between frontal, and between frontal and subcortical pathways. However, such studies also pointed out that neuro-plasticity may have resulted in the brain’s ability to compensate for pathway disturbances.

On the other hand, it clearly appears that anxiety is a key psychological problem for people with MS. Anxiety here does not refer to a clinical phenomenon or disorder. Instead, what is relevant in this context is anxiety as the central alarm and defense system of the organism, which is activated to threats of any kind. Such threats may concern external stimuli potentially threatening to harm the organism. However, any internal symptom associated with illness or physical dysfunction can trigger this alarm system.

At the centre of this alarm or defense system is the amygdala which is localised in the temporal lobe. Unexpected danger signals which we might be confronted with are sent instantly to the amygdala. The amygdala initiates lightning-fast, reflex-like autonomic responses. These lead to the release of adrenalin, the increase of blood pressure and mobilise the entire organism for protective reactions.

Patients with acute or temporary illness undergo assessments, treatments and reassurance which eventually lead to the re-evaluation and calming down of the alarm systems. However, this is not the case in chronic illness. People with relapsing-remitting MS experience the reduction of physiological threat and stress as their MS symptoms improve. At the same time they might be building up avoidance strategies in the hope that the MS may disappear altogether. Consequently, any further MS episode will trigger the alarm and survival mechanisms again. If the patient is not guided to experience adjustment in the broader sense, they re-experience such physiological stress with increasing intensity at such trigger moments. The scenario might be similar for patients with primary-progressive MS. The central alarm systems are triggered each time a symptom worsens or new symptoms might occur.

Experiencing such autonomic stress responses is not pleasant. In addition to that, patients might be struggling to adjust to the long-term disabling prospects which the illness involves. Stressful autonomic responses trigger not only unpleasant symptoms, but also deeper feelings concerning disability, ill health, dependency and ultimately death.

It appears that the proposed emotional processing therapy offers a unique opportunity to accelerate neuropsychological compensation on neurological levels as well as helping PwMS to modulate and gain control over their emotional experiences.

4.0.Stress and coping.

Most research that investigates coping with the stress of MS is influenced by the stress and coping theory by Lazarus and Folkman (1984) (Pakenham, 2006). The theory highlights that coping strategies and appraisal are important factors in adjustment to a chronic illness such as MS. If the illness is appraised (interpreted) as a stressful event that is a threat to life and there are perceived to be limited coping strategies available to the person with MS, then MS may cause significant stress (Pakenham, 2006). Though if coping strategies are perceived as freely available one may reappraise the event as less threatening and therefore as less stressful (Carver, Scheier and Weintrau, 1989). Positive reappraisal of the event is a good coping mechanism (Folkman andMoskowitz, 2000). Positive reappraisal is a cognitive process where people focus on the positive aspects of the event, this allows the person to experience positive emotions and positive psychological wellbeing due to the meaning given to the event (Folkman and Moskowitz, 2000).

Lazarus (1993) discusses two particular types of coping and indicates the differences between problem -focused coping and emotion-focused coping. Problem-focused coping is about using coping actions to change the persons relationship with the environment to manage the cause of the suffering (Lazaru,1993, Folkman and Moskowitz,2000). This can include planning, taking direct action, seeking assistance (Carver, Scheier,Weintraub, 1989). Emotion-focused coping mainly involves denial and avoidance e.g. people may avoid thinking about any threats to try to reduce distress (Lazarus, 1993). There are possible benefits to distancing and denial of psychological stress by reappraisal of a threat as non-threatening, however research suggests that avoidance of emotions related to this stress is related to distress in the long-term. Repression has been associated with illness risk factors (Newtonand Contrada, 1994). Though, good emotional coping strategies are related to healthy adjustment to stressful events. A study by Pakenham (2006) examined the associations between stress, coping predictors and distress and positive outcomes for five hundred and two PwMS. Pakenham (2006) found that emotional release and acceptance were related to positive outcomes and avoidance was related to distress. Dennison, Moss-Morris and Chalder (2009) carried out a meta-analysis of seventy-two studies in relation to psychological factors and adjustment outcomes for PwMS. The most consistent result was that perceived stress and maladaptive emotion-focused coping strategies such as denial, wishful thinking (e.g. hoping a miracle would occur and it would all stop) and escape-avoidance coping (e.g. trying to forget the situation) were related to poorer adjustment for PwMS. Problem-focused coping strategies such as positive reappraisal and pursuing social support were related to superior adjustment to MS (Dennison, Moss-Morris and Chalder, 2009).

There has also been an increase in interest recently in the positive aspects of the stress processes and positive outcomes such as personal transformation or growth (Folkman and Moskowitz, 2000). Tedeschi, Park and Calhoun (1998) have defined this positive personal growth following a traumatic event as post traumatic growth.

4.1. Psychological Therapy for PwMS.

Research suggests that patients are less likely to be direct about their emotional concerns to medical professionals (Suchman, Markakis, Beckman andFrankel, 1997). Also medical professionals are less likely to acknowledge emotional concerns and are more likely to redirect concerns to diagnostic exploration of symptoms (Suchman, Markakis, Beckman andFrankel, 1997). Furthermore, research has found that medical professionals avoid pursuing emotional clues that patients provide (Levinson,Gorawara-Bhat and Lamb, 2000).This could result in PwMS being more likely to suppress their emotions which could result in the development of emotional disorders. As the literature review highlighted, PwMS require professionals to acknowledge their emotional distress and provide empathetic responses.

When a psychotherapist formulates which psychotherapy would be most suitable for PwMS, Cognitive therapy or Cognitive Behavior Therapy may first come to mind, yet these therapies do not focus on the emotional experiences of PwMS. Many of the possible psychological therapies for PwMS are focused on dealing with emotions or have emotion elements to them, for instance Greenburg emotion focused therapy, Gestalt and counseling, Acceptance Commitment Therapy and Dialectical Behavioural Therapy. However, the emotional processing approach to therapy offers a unique way of coping with emotional experiences from stressful events associated with MS to assist with psychological adjustment.

4.2. Emotional processing therapy for PwMS.

The concept of ‘emotional processing’ was initially introduced by Rachman (1980). Emotional processing is “a process whereby emotional disturbances are absorbed and declined to the extent that other experiences and behaviour can proceed without disruptions” (Rachman,1980,p51). Rachman used the concept emotional processing to refer to the way in which someone processes stressful life events (Baker, Holloway, Thomas, Thomas and Owens, 2004). Rachman argued that if an individual has difficulties emotionally processing these events then this could result in disturbances in behaviour and experience (Baker et al, 2004).

Emotional processing is critical to successful adjustment to a traumatic experience such as being given a diagnosis of breast cancer (Schmidt and Andrykowski , 2004). At the moment, similar to cancer, MS appears to be medically understood with reinforcement from neurologists and MS nurses, though the exploration of the emotional component and its effects are not adequately investigated. Similar to the stress and coping theory of Lazarus and Folkman (1984) the emotional processing approach first focuses on the appraisal of the stressful event. According to the emotional processing model the appraisal of the stressful event is based on past memories and past emotion schemas. The emotional processing approach to therapy focuses on positive reappraisal of the stressful event and adaptive emotion- focused coping which research shows are linked to superior adjustment to MS (Pakenham, 2006, Dennison et al , 2009). The emotional processing approach to therapy involves exposure to the emotional experience of the stressful event and does not include maladaptive emotion focused coping such as denial, wishful thinking and escape-avoidance coping which have been related to poorer adjustment for PwMS. According to the emotional processing approach emotion regulation is increased when one learns to experience their emotions as a whole, by labeling the emotions, linking the emotions to the event then expressing the emotions (Baker, 2007). Emotions are ‘powerful, biologically based reactions that on occasion seem out of control’ and ‘emotion regulation is an essential feature of mental health’ (Gross and Munoz, 1995 : P:151). When someone experiences a stressful event, emotion regulation allows people to assess the emotional effect of the condition and assists them in identifying what emotional reaction is appropriate, including when and how they express emotions (Wang and Saudino, 2011). Successful emotional processing involves acceptance of emotions, increased understanding of emotions and the stressful event and perceived control over life situations (Baker, 2013).

‘Modern emotion theories emphasise the adaptive value of emotions. Emotions are by no means *always* helpful, however. They often must be regulated. The study of emotional regulation has its origins in psychoanalytic and stress and coping traditions’ (Gross, 1999: p:551) .

Thomas, Thomas, Hillier, Galvin and Baker (2009) published a Cochrane review of the literature on psychological interventions for PwMS. The authors found that cognitive behaviour therapy was the most frequently used psychological approach. Though, this was mainly to treat depression for PwMS and provide coping strategies for PwMS. Thomas et al (2009) concluded that there were large gaps in the use of psychological interventions for PwMS. There is a fair amount of research looking at the efficacy of psychotherapy for PwMS, but most of it focuses on depression in MS and is Cognitive Behaviour Therapy (CBT) - focused (Mohr, Likosky, Bertagnolli, Goodkin, Van Der Wende, Dwyer andDick, 2000) and ignores any focus on emotions therefore the research has been unaware to the benefits of an emotional processing approach to therapy. Therefore it seems vital to explore such issues in order to improve the psychological well-being of PwMS. Thomas et al (2009) argue that consideration should be given as to how to replicate the intervention whilst maintaining the effectiveness. The provision of therapy guidelines aims to improve the likelihood of replications of such emotional processing approach interventions.

Research supports the use of the emotional processing approach to therapy with other populations with physical illness e.g. cancer (Baker, et al 2012). In 2008, at the Royal Bournemouth Hospital, Professor Roger Baker, Dr. Tamas Hickish and Lin Purandare set up a clinic for cancer survivors who are assessed, diagnosed and treated for PTSD using the emotional processing therapy framework (Thompson, 2011). Research and discussion of Psychological therapy for PwMS with emphasis on the stress and emotions present for PwMS is particularly current, for example on 23/02/2013 in Paris professors, researchers, PwMS and people from the MS gathered and presented on ‘Fatigue, pain, stress and psychological factors in MS’ .

Emotional processing therapy has been successfully adapted and used for people with PTSD following cancer (Baker et al, 2012). Cancer can trigger fears of dying; maybe this is also true for PwMS as each episode might trigger such a fear. As Pw relapsing remitting MS go through stages in their illness they need to process their emotions (e.g. fear) each time they have a further episode or experience further loss of abilities.

I noticed the urgent need for psycho- therapeutic interventions focusing on emotion processing and emotion regulation at my recent post as an Assistant Psychologist at Dorset HealthCare University NHS Foundation Trust (DHUFT). I would like to illustrate my experiences of the usefulness of an emotional processing approach for a PwMS. A person with MS was referred to me for psychological support during my placement with DHUFT. At the clinical interview this patient stated that she felt ‘out of control’ and could not cope. Her emotions were unregulated and she presented as teary. Her MS symptoms and resulting stress and unregulated emotions affected her occupational and social functioning.

I introduced my patient to emotional processing therapy and I offered a number of sessions focusing on the three stages of emotional processing therapy which were:

1. Exploring the individual’s emotional processing style.
2. Practicing a more open emotional processing style.
3. Practical preparation for prolonged exposure exercises.

Emotional processing therapy has two main elements which are exposure and emotional understanding. At the end of the therapy the patient reported significant improvements in emotional regulation and functioning. The patient said that she ‘ had a general awareness of her emotional wellbeing’ since the emotional processing therapy and this allowed her to have more control over her emotions to the point that she felt comfortable expressing and processing her emotions but could control them to ensure functioning. The patient said ‘I don’t think I’d be where I was now without the model’. After the emotional processing sessions the patient stated that she had more acceptance of her diagnosis of MS and its symptoms. This was in contrast to her presenting difficulties at the beginning of the treatment.

This example illustrates the significance of emotional distress in PwMS and how adaptive emotion focused interventions can optimize a patient’s well-being and functioning.

The case also highlighted that

1. The Emotional Processing Therapy approach was helpful for this person with MS to regulate emotional wellbeing.
2. The emotional processing model might be useful for therapists to help PwMS.
3. There was no research to evaluate the effectiveness of the EPT for PwMS. Research about such models appears preliminary at this stage and the way that I have applied the model to a psychological intervention was explorative. Therefore more research is required and this is why I am proposing this project.

**References**

Abbey, G ( ongoing) An investigation of Emotional Processing Therapy in Cancer survivors with Post traumatic stress disorder. PhD thesis, Bournemouth University

Amato, M.P., Ponziani, G., Rossi,F., Liedl ,C.L., Stefanile,C., and Rossi,L.(2001) Quality of life in multiple sclerosis: the impact of depression, fatigue and disability. Multiple sclerosis, 7, 340-344.

Baker, R., Owens, M., Thomas, S., Whittlesea ,A., Abbey, G., Gower,P.,Tosunlar, L., Corrigan, E., and Thomas ,P.,W. ( 2012) Does CBT Facilitate Emotional Processing? Behavioural and Cognitive Psychotherapy 40, 19-37

Baker, R. (2001). An emotional processing model for counselling and psychotherapy, a way forward? Counselling in Practice, 7(1), 8-11.

Baker, R. (2007) Emotional Processing: Healing Through Feeling. Oxford: Lion Hudson.

[Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker), Gale, L., Abbey, G. and Thomas, S., 2013. Emotional Processing Therapy for post traumatic stress disorder. *Counselling Psychology Quarterly*

Baker, R., Holloway, J., Thomas, P. W., Thomas, S. and Owens, M. (2004). Emotional Processing and Panic. Behaviour Research and Therapy, 42, 1271-1287.

Baker, R., Owens, M., Thomas, S., Whittlesea, A., Abbey, G., Gower, P., Tosunlar, L., Corrigan, E., & Thomas, P. W. (2012). Does CBT facilitate emotional processing? Behavioural and Cognitive Psychotherapy, 40, 19-37.

Baker, R., Thomas, S., Thomas, P.W. and Owens, M. (2007) Development of an emotional processing scale. Journal of Psychosomatic Research, 62,167-178.

Baker, R., Thomas, S., Thomas. P.W., Gower, P., Santonastaso, M. and Whittlesea, A. (2010) The Emotional Processing Scale: Scale refinement and abridgement (EPS-25). Journal of Psychosomatic Research, 68, 83-88.

Baker, R; Tonsular, L; Richards, S; McDermot, M; McDermot, C (2005) ‘Emotional Processing and Chronic Fatigue Syndrome, Ann Rheum Dis: 64 (Suppl iii)

Bakshi, R. (2003) Fatigue associated with Multiple sclerosis: diagnosis, impact and management. Multiple Sclerosis, 9, 219-227.

Bodini,B., Mandarelli,G., Tomassini,V., Tarsitani,L., Pestalozza,I.,Gasperini,C., Lenzi,G,L., Panacheri,P. and Pozzilli,C. (2008) Alexithymia in multiple sclerosis: relationship with fatigue and depression. Acta neurologica scandinavica, 118 18-23

Brassington ,J.C. and Marsh ,N.V.(1998) Neuropsychological Aspects of Multiple Sclerosis. Neuropsychology Review, 8 (2), 43-77.

Brooks,N.A. and Matson,R.,R. (1982) Social-Psychological adjustment to Multiple Sclerosis A Longitudinal study Social Science and Medicine 16. 2129-2135.

Brown,.F., Tennant,C.C, Sharrock,M,. Hodgkinson,S., Dunn.S.M. and Pollard,J.D. (2006) Relationship between stress and relapse in multiple sclerosis: Part 1.Important Features. Multiple Sclerosis 12.453-464.

Buljevac, D., Hop,W.C.J., Reedeker, W., Janssens,A.,C.J.W., Van der Meche,F.G.A. ,Van Doorn, P.A. and Hintzen,R.Q. (2003) Self-reported stressful life events and exacerbations in multiple sclerosis: Prospective study, British Medical Journal. 327 1-5

Carver,C.S., Scheier.F.M. and Weintrau,K.J.( 1989) Assessing coping strategies: A theoretically based approach. Journal of personality and social psychology 56 (2) 267-283.

Chiaravolloti,N.D. and Deluca,J.( 2008) Cognitive impairment in multiple sclerosis. Lancet Neurology 7 .1139-51. doi: 10.1016/S1474-4422(08)70259-X

Demirkiran,M. Sarica,Y. Uguz,S. Yerdelen.D. andAslan,K ( 2006) Multiple Sclerosis patients with and without sexual dysfunction: are there any differences? Multiple Sclerosis 12 209-214.

Dennison,L. Moss-Morris.R. and Chalder.T. (2009)A review of psychological correlates of adjustment in patients with multiple sclerosis. Clinical psychology review, 29.141-153

Durrand, M. (2005) MS and Stress, Inside MS.16-21.

Ede,D,M., Gibbons,L.E., Chwastiak.L., and Bombardier,C.H., Sullivan. M.D., Kraft.G.H, (2003) Chronic Pain in a large community sample of persons with multiple sclerosis. Multiple sclerosis 9 605-611.

Ede,D.M., Osbourne,T.L., Hanley,M.A. Jensen.M.P. and Kraft.G.H. (2006) The scope and nature of pain in persons with multiple sclerosis Multiple sclerosis, 12, 629-638.

Edwards,G.R. Barlow,J.H. and Turner,A.P. (2008)Experiences of diagnosis and treatment among people with multiple sclerosis. Journal of Evaluation in clinical practice 14 460-464.

Esmail,S. Munro,B. Gibson,N. (2007) Couple’s experience with Multiple Sclerosis in the context of their sexual relationship. Sex Disability 25 163-177.

Folkman,S. and Moskowitz,J.T. 2000).Stress, Positive Emotion and coping. Current directions in Psychological science 9 (4) 115-118

Ford,H., Trigwell,P., and Johnson, M (1998) The nature of fatigue in multiple sclerosis Journal of Psychosomatic Research 45 (1) 33-38.

Ghezzi, A.( 1999) Sexuality and multiple sclerosis Scanda journal of sexology 2 125-140

Gross,J,J and Munoz,R.F( 1995) Emotion regulation and mental health Clinical psychology: Science and practice 2 (2) 151-164.

Gross,J.J (1999) Emotion regulation:Past,present ,future.Cognition and emotion 13 (5) 551-573.

Gulick,E,E. (2001) Emotional distress and activities of daily living functioning in persons with multiple sclerosis. Nursing Research ,50 (3) 147-54.

Hakim,E.A., Bakhett,A.M.O., Bryant,T.N. Roberts,M.W.H., McIntosh-Michaelis,S.A., Spackman, A.J.,Martin,J.P., and McLellan,D.L.(2000) The social impact of multiple sclerosis-a study of 305 patients and their relatives. Disability and Rehabilitation 22(6) 288-293

Hadjimichael,O., Kerns,R.D., Rizzo,M.A., Cutter.G., and Vollmer,T. (2007) Persistent pain and uncomfortable sensations in persons with multiple sclerosis. Pain 127 35-41.

Howells, G. (2013). Emotional processing and memory. (Unpublished PhD thesis). Bournemouth University, England

Janssens, A.C.J.W. de Boer,J.B, Kalkers, N.F., Passchier,J. and van Doorn, P.A. and Hintzen, R.Q.( 2004) Patients with multiple sclerosis prefer early diagnosis .European journal of Neurology 11.335-337.

Johnson ,J.(2003) On receiving the diagnosis of multiple sclerosis: managing the transition Multiple sclerosis 9 .82-88.

 Johnson, K.L. (2007) The Neuropsychology of Multiple sclerosis. Dis Mon. 53 172-176.

Kerns,R.D, Kassirer,M., and Otis,J. (2002) Pain in multiple sclerosis:A biopsychological perspective. Journal of rehabilitation research and development 39 (2) 225-232.

Johnson,K.L., Yorkston,K.M., Klasner,E.R., Keuhn,C.M., Johnson.E., and Amtmann,D.( 2004) The Cost and Benefits of Employment: A Qualitative study of Experiences of persons with Multiple Sclerosis. Archives of Physical Medicine and rehabilitation 85 (2) 201-9.

Landro,N.I., Sletvold,H. and Celius,E.,G.(2000).Memory Functioning and Emotional Changes on Early Phase Multiple Sclerosis. Archives of Clinical Neuropsychology, 15 (1) 37-46.

Leary, S.M. Porter,B, andThompson,A.J. (2005) Review Multiple sclerosis: diagnosis and the management of acute relapses. Postgraduate Medical Journal 81.302-308

Levinson, W., Gorawara-Bhat,R. and Lamb, J( 2000).A study of patient clues and physicians responses in primary care and surgical settings JAMA 284 (8) 1021-1027.

Lazarus .R.S.(1993).From Psychological stress to the emotions: A history of changing outlooks. Annual review of psychology 44.1-21.

Lazarus,R.S. and Folkman,S. (1984) Stress Appraisal and coping Springer Publishing Company, New York.

Lynch,S.G., Kroencke,D.C. and Denney.D.R (2001) The relationship between disability and depression in Multiple Sclerosis:Te role of uncertainty,coping and hope. Multiple Sclerosis 7 411-416.

MS Society (2012).[Online] Avaliable from: <http://www.mssociety.org.uk/what-is-ms> .[Accessed 23rd January 2013].

MS Society (2008) What is MS? Information on diagnosis, symptoms, treatment, management and sources of support Third edition.

Multiple Sclerosis Society of Canada (2007). Taming Stress in Multiple Sclerosis. Arcade press Limited

Mohr,D.C ( 2007) Stress and multiple sclerosis .Journal of Neurology.254 65-68.

Mohr .D.C and Pelletier, D. (2005) A temporal framework for understanding the effects of stressful life events on inflammation in patients with multiple sclerosis, Brain Behaviour and Immunity 20: 27-36

Mohr, D.C. Hart, S.L. Julian, L. Cox.D and Pelletier.D. (2004)Association between stressful life events and exacerbation in multiple sclerosis: a meta-analysis. British Medical Journal 27; 328(7442): 731. doi: 10.1136/bmj.38041.724421.55

Mohr, D.C. and Cox, D. (2001) Multiple Sclerosis: Empirical Literature for the Clinical Health Psychologist. Journal of Clinical Psychology 57 (4) 479-499.

Mohr,D.C., Dick, D.R., Russo, D., Pinn,J. Boudewyn,A.C. Likosky.W. and Goodwin,D.E. (1999) The Psychosocial Impact of Multiple Sclerosis: Exploring the patient’s perspective. Health Psychology 18(4) 376-382.

Mohr, D.C., Likosky, W., Bertagnolli,A., Goodkin, D.E., Van Der Wende,J., Dwyer,P. and Dick,L. P., (2000)Telephone-administered Cognitive Behavioural therapy for treatment of depressive symptoms in multiple sclerosis. Journal of Consulting and Clinical Psychology ,68 (2) 356-61.

McNulty,K. Livneh.H and Wilson, L.M( 2004) Perceived uncertainty, spiritual well-being, and psychological adaptation in individuals with multiple sclerosis .Rehabilitation psychology 49 (2) 91-99.

Malcomson, K.S. Lowe-strong, A.S. and Dunwoody.L (2008) What can we learn from the personal insights of individuals living and coping with Multiple Sclerosis Disability and Rehabilitation 30, 9,662-674

Mullins,L.L. Cote,M.P., Fuemmeler,B.F., Jean,V.M., Beatty.W.W andPaul,R.H. (2001) Illness intrusiveness,uncertainty and distress in individuals with multiple sclerosis Rehabilitation psychology 46 (2) 139-153.

Nortvedt,M.W. Riise,T., Myhr,K-M., Landtblom,A-M.,Bakke.A. and Nyland,H.I.( 2001).Reduced quality of life among multiple sclerosis patients with sexual disturbance and bladder dysfunction. Multiple Sclerosis 7 231-235.

Newton,T,L,and Contrada,R.J( 1994) Alexithymia and repression: Contrasting Emotion focused coping styles Psychosomatic Medicine 56 457-462

Pakenham,K.I. (2008)Making sense of illness or disability :The nature of sense Making in Multiple Sclerosis (MS) Journal of Health Psychology 13(1) 93-105.

Pakenham, K.I. (2006) Investigation of the coping antecedents to positive outcomes and distress in multiple sclerosis Psychology and health 21(5) 633-649.

Pitton-Vouyovitch,S., Debouverie,M., Guillemin,F., Vandenberghe,N.,Anxionnat,R., and Vespignanai,H.(2006) Fatigue in multiple sclerosis is related to disability,depression and quality of life. Journal of the Neurological Sciences 243 39-45.

Rachman,S. (1980) Emotional Processing. Behaviour Research and Therapy,18,51-60.

Raleigh, J. (2003). A preliminary comparative study of emotional processing in women with fibromyalgia syndrome, rheumatoid arthritis and healthy subjects. MSC Dissertation, School of Health Professions and Rehabilitation Sciences, University of Southampton

Rae-Grant, A.D Eckert,N.J., Bartz.S., and Reed,J.F. (1999) Sensory Symptoms of multiple sclerosis: a hidden reservoir of morbidity. Multiple Sclerosis 5 179-183.

Rao,SM, Huber,S,J andBorstein,R.A(1992) Emotional Changes with multiple sclerosis and Parkinson’s Disease, Journal of Consulting and Clinical Psychology. 60 (3) 369-78.

Roessler.R.T. and Rumrill,P.D ( 2003)Multiple Sclerosis and employment barriers: A systematic perspective on diagnosis and intervention Work 21 17-23.

Santonastaso, M. (2011). Cross-cultural comparison of emotional processing. (Unpublished PhD thesis). Bournemouth University, England.

Santanastaso, M., Gremigni, P., [Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker) and [Thomas, P.](http://staffprofiles.bournemouth.ac.uk/display/pthomas), 2008. Deficits in emotional processing and gastrointestinal disorders. *In: Joint conference of the BPS Division of Health Psychology & European Health Psychology Society* 9-12 September 2008 Bath, England.

Santanastaso, M., [Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker), [Thomas, P.](http://staffprofiles.bournemouth.ac.uk/display/pthomas) and Gremigni, P., 2008. Emotional processing and chronic pain. *In: Joint conference of the BPS Division of Health Psychology & European Health Psychology Society* 9-12 September 2008 Bath, England.

Schmidt, J E, and Andrykowski ,MA (2004) The role of social and dispositional variables associated with emotional processing in adjustment to breast cancer: an internet-based study. Health Psychology 23 (3) 259-266

Scolding, N. (2001) The differential diagnosis of multiple sclerosis.Journal of neurology,neurosurgery and psychiatry 7.1 9-15

Southerst,D., Labrecque.M., and Mior.S. (2012) Pain and Pain-related disability in patients with multiple sclerosis: Acase series of two patients treated with chiropractic management. Clinical Chiropractic[Online] Avaliable from: <http://dx.doi.org/10.1016/j.clch.2012.11.002> [Accessed 23rd January 2013]

Smith.M.M and Arnett,P.A. (2005) Factors related to employment status changes in individuals with multiple sclerosis. Multiple sclerosis 11.602-609

Svendsen,K.B. Jensen,T.S., Overvad,K., Hansen,H.J., Koch-Henriksen,N., and Bach,F.W ( 2003) Pain in patients with Multiple sclerosis A population-Based study Archives of Neurology 60 (8) 1089-1094

Shawaryn,M.,A. Schiaffino,K.M. LaRocca,N.G. and Johnston,M.,V (2002).Determinants of health-related quality of life in multiple sclerosis: the role of illness intrusiveness. Multiple Sclerosis 8.310-318

Suchman, A.L.,Markakis,K., Beckman.H.B., andFrankel,R, (1997) The patient-physician relationship Amodel of empathetic communication in the medical interview. JAMA 277 (8) 678-682.

Tedeschi, R.G., Park.C. L. and Calhoun, L.G (Eds)(1998) Posttraumatic growth. Mahwah ,NJ: Erlbaum.

Thomas,P.W. Thomas,S. Hillier.C. Galvin,K. Baker,R. (2009) Psychological Interventions for multiple sclerosis (Review) The Cochrane Collaboration, John Wiley and Sons,Ltd.

Thomas S, Baker R, Thomas P (2007) ‘Measuring Emotional Processing’. In symposium ‘Emotion Regulation’ presented at the 4th International Conference on the (Non) Expression of Emotions in Health and Disease. Tilburg University, Holland October.

Thomas, S., [Thomas, P.W.](http://staffprofiles.bournemouth.ac.uk/display/pthomas), [Kersten, P.](http://staffprofiles.bournemouth.ac.uk/display/pkersten), [Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker) et al., 2013. A pragmatic parallel arm multi-centre randomised controlled trial to assess the effectiveness and cost-effectiveness of a group-based fatigue management programme (FACETS) for people with multiple sclerosis. *J Neurol Neurosurg Psychiatry*, 84 (10), 1092-1099.

[Thomas, P.](http://staffprofiles.bournemouth.ac.uk/display/pthomas), Thomas, S., [Kersten, P.](http://staffprofiles.bournemouth.ac.uk/display/pkersten), Jones, R., Nock, A., Slingsby, V., Green, C., [Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker), Galvin, K.T. and Hillier, C., 2010. Multi-centre parallel arm randomised controlled trial to assess the effectiveness and cost-effectiveness of a group-based cognitive behavioural approach to managing fatigue in people with multiple sclerosis. *BMC Neurology*, 10.

Thomas, S., [Thomas, P.](http://staffprofiles.bournemouth.ac.uk/display/pthomas), Nock, A., Slingsby, V., Galvin, K.T., [Baker, R.](http://staffprofiles.bournemouth.ac.uk/display/rbaker), Moffat, N. and Hillier, C., 2010. Development and preliminary evaluation of a cognitive behavioural approach to fatigue management in people with multiple sclerosis. *Patient Education and Counseling*, 78, 240-249.

Thompson, S. B. N., 2011. Psychology of trauma: clinical reviews, case histories, research. Portsmouth: Blackwell-Harvard-Academic

Thompson, S., Eccleston, L. and Hickish, T. F., 2011. Post-traumatic stress disorder in cancer survivors: recognising and acknowledging the symptoms. Webmedcentral Oncology, 2 (8), pp. 1-16.

Whitlock,F.A., and Siskind,M.M.(1980)Depression as a major Symptom of multiple sclerosis. Journal of neurology, Neurosurgery and psychiatry,43,861-865.

Wang, M. and Saudion, J.K( 2011) Emotion regulation and stress. Journal of adult development 18.95-103.

Wilkins, C. (2012). Emotional processing in childbirth. (Unpublished PhD thesis). Bournemouth University, England.

Wilkins C, Baker R, Bick D, Thomas P. (2009) Emotional processing in childbirth: a predictor of postnatal depression? British Journal of Midwifery, 17,154-9.

Zorzon, M. Zivadinov,R. Monti Bragadin, L., Moretti,R. De Masi, Nasuelli,D and Caszzato.G. (2001) Sexual dysfunction in multiple sclerosis: A 2year follow up study. Journal of the Neurological Sciences 187 1-5.