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The American University in Cairo
School of Humanities and Social Sciences

THE ASSOCIATION BETWEEN PERSONALITY, COPING AND DEPRESSIVE SYMPTOMS IN
ADULT PATIENTS WITH CHRONIC PAIN

A Thesis Submitted to

Department of Psychology

In partial fulfillment of the requirements for the degree of
Master of Arts in Counseling Psychology

By Reem Mohamed Ahmed Deif

Under the supervision of Dr. Kate Ellis

May 2018

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"مَنْ عَلَّمَنِي حَرْفًا"

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ABSTRACT

As a rising concern in the medical and mental health fields, this study aims to examine predictors of depressive symptoms in a sample of Egyptian chronic pain patients in terms of coping styles and personality traits. Patients with chronic pain are believed to experience different stressors which include, but are not limited to, pain, disability, reduced productivity and financial difficulties. Such factors, in addition to various psychosocial factors, constitute the disease burden of chronic pain. This study examines the degree to which coping styles and personality traits can influence the disease outcome in terms of comorbid depressive symptoms. A total of 98 (50 patients with fibromyalgia and 48 patients with rheumatoid arthritis) patients were interviewed and were assessed in terms of their coping styles, personality profile and severity of depressive symptoms. Results show a high prevalence of depressive symptoms and suggest passive coping, high neuroticism, low extraversion, unmarried status and more years of education. to be moderate predictors of the severity of chronic pain. Findings of this study shed light on the significance of the psychological aspects of chronic pain conditions and may help in designing liaison interventions for the management of secondary and comorbid depressive symptoms.

A. INTRODUCTION

I. Chronic Pain

Pain refers to a subjective experience involving a neurophysiological component and an affective response to it (Merskey, 2001). Although it is philosophically inevitable, it often disappears over time, unless it is associated with a specific severe condition, and thus people are able to manage such experiences one way or the other. As for chronic pain, on the other hand, various neuro-endocrinal and neuro-physiological processes come into play affecting the sympathetic nervous system and reducing immunofunctioning (Brennan, Carr, & Cousins, 2007; Green, Ndao-Brumblay, Nagrant, Baker & Rothman, 2004; Mullersdorf, Zander, & Eriksson, 2011). In theory, it is only distinguished by the persistence of symptoms for at least three months as suggested by the International Association for the Study of Pain (IASP; Merskey, 1986).

Criticizing the definition of chronic pain as “a never-ending series of normal pain experiences strung loosely end to end” (Hilbert, 1984, p. 367), Hilbert (1984) argues that sufferers need to make meaning out of their complex ongoing pain experience. Such meanings are primarily derived from the culture where pain originates and is expressed. For example, some studies acknowledge different biological and psychosocial factors in the processing and experiencing of pain (i.e. Goodman, 2000) and neuroimaging research suggests neurophysiological similarities between experiencing pain, social rejection and observing it in others (Lumley et al., 2011). Another study proposed that pain may have multidimensional physiological and psychological outcomes which add to the disease burden (Brennan, Carr, & Cousins, 2007). For example, an individual may experience physical pain which puts him/her at a higher risk for depressive symptoms and lower overall functioning. However, many physicians

still underestimate the relationship between physical pain and psychological problems of adjustment and may consider psychological factors to be the cause of pain. This is understandable given the demandingness of patients with chronic pain in seeking medical health services. Here comes the *biopsychosocial approach* to provide a better understanding of chronic pain experiences as complex by-products of the interaction between biological, psychological and social factors (Turk, 1996). On a similar note and according to Mcbeth and Silman (2001), the temporal relationship between depression and chronic pain can be explained in terms of one of three models; 1) depressive symptoms may result from chronic pain, 2) depressive symptoms may precede the onset of physical pain, and 3) both conditions may have a common pathophysiologic mechanism but are still etiologically independent from each other.

Theoretically and clinically speaking, it is important to distinguish between acute and chronic pain. Among the very first to demonstrate anatomical and psychological differences between both conditions was John J. Bonica, MD. Looking into chronic pain, it can be examined in terms of four stages that a patient often goes through:

1. *Acute Pain* (0-2 months); This stage is characterized by the patient's good expectations about the prognosis, use of narcotic analgesics for pain relief for a brief period of time, and very few psychological problems if assessed using objective tests. Anatomically, pain starts at the receptor sites (i.e.: skin receptors) before reaching the brain through the spinal cord, but it does not send messages to the reticular-activating system. It targets the synapses in the thalamus and then transmits the message to the somatosensory cortex (Hendler, 1982).

2. *Subacute Pain* (2-6 months); This stage is characterized by more physical and psychological distress as shown in objective tests (i.e.: higher scores on hypochondriasis and hysteria on The Minnesota Multiphasic Personality Inventory [MMPI]; higher scores on somatization and anxiety on the The Symptom Checklist-90 [SCL-90]). It is parallel to the denial stage a dying patient goes through. Therefore, with denial, there is low likelihood of recognizable depression. However, there might be an increase in other symptoms such as irritability, sleep problems, and social withdrawal. This stage still has similar anatomical pathways as the acute pain stage (Hendler, 1982).

3. *Chronic Pain* (6-8 months); In this stage, symptoms of depression begins to manifest more significantly. These include reduced productivity, low self-esteem, hopelessness, helplessness, suicidal ideations and the realization of the chronicity of the condition, besides other typical symptoms of depression. However, depression resolves during this stage and is often replaced with some degrees of anger towards others. This stage is also characterized by the patient's dependency on others for support (i.e.: family members and health-care providers). The patient then enters a stage of negotiation and bargaining with them on ways to manage and/or alleviate his/her pain experiences with different degrees of assistance. This stage is anatomically different from the previous stages due to the involvement of the limbic system in the pain experience. This means more neural activities and neurosynaptic transmitters that are associated with emotions and pain perception (Hendler, 1982).

4. *Subchronic Pain* (3-12 or more years); By reaching this stage, the patient has learned how to "live with the pain", yet without accepting it. According to Hendler (1982), a pain patient never reaches the stage of acceptance; however, in this stage, daily dysfunctions

start to resolve and the patient somehow regains some of his/her functioning by adjusting his/her lifestyle to meet the demands of the chronic pain experience. This stage is anatomically similar to the chronic pain stage (Hendler, 1982).

1. Rheumatoid Arthritis

Rheumatoid arthritis (RA) is a chronic, progressive, systematic inflammatory condition characterized by the migration of inflammatory cells from the blood-stream to different joints throughout the body (Pitzalis, 1999). Such autoimmune mechanisms gradually result in the destruction of cartilage and bone through the action and the proliferation of the synovial tissue cells (i.e.: macrophages and T cells) (Van den Berg & Van de Loo, 1999) which are originally responsible for creating the synovial tissue as a connective tissue protecting tendons. Changes in levels of inflammation are also linked with irreversible structural deteriorations in the joint which also result in more pain and higher risk of disability. Other systemic effects can be evident in the skin, lungs and other body areas (Smith, Peck, & Ward, 1990).

Prevalence of RA in rural Egypt is estimated to be 0.29% (Abdel-Nasser, Abdel-Tawab, Mahmoud, Sammy, & Abdel-Fattah, 2004) and no other statistics are available. Looking into the sex ratio which suggests females to be at a higher risk, it is estimated that one in 12 females and 1 in 20 males develop an adult-onset inflammatory autoimmune rheumatic disease during their lifetime (Crowson et al., 2011). Worldwide prevalence of RA is estimated to be 0.24% (95% CI 0.23% to 0.25%); however, the disability-adjusted life years seem to be on the increase (from 3.3 million in 190 to 4.8 million in 2010) due to the global population growth and increased longevity (Cross et al., 2014). Additionally, one study also suggested an increase in incidence

and prevalence of RA among females between 1995 and 2007 (Myasoedova, Crowson, Kremers, Therneau, & Gabriel, 2010).

Chronic rheumatic conditions have been linked with depression to the extent that the concept of “the psychobiology of arthritis-related depressive disorder” has been used in research (Zyrianova et al., 2006). Statistics suggest a high prevalence of depression in RA patients and one study demonstrated a 2.06 higher likelihood in RA than in controls (Wang et al., 2014). Historically, there have been many attempts to understand the psychological aspects of RA (Young, 1993) and to explain such statistical findings. For example, scholars following the psychoanalytic school of thought had been trying to demonstrate what they referred to as the “arthritis personality”. Although the validity and reliability of such trials were questionable, they have encouraged more advanced research in the psychological factors that influence the disease course from a more holistic biopsychosocial perspective.

Among all stressors that are associated with RA, pain is considered to be the primary one (Affleck, Pfeiffer, Tennen, & Fifield, 1988). For example, it goes without saying that the pain that accompanies this condition and the changes in the joint/cartilage/tendon structure affect the daily functioning of patients. On the psychological level, pain has a strong association with both depression and anxiety (Hawley & Wolfe, 1988). For example, one study showed a link between disease severity and severity of depressive symptoms in a sample of RA patients (Smith et al., 1990). This association becomes more significant when pain perception, rather than pain, is considered (Keefe, Brown, Wallston, & Caldwell, 1989). On a similar note, depression severity and inflammation are believed to be associated in RA and to have independent effects on perceived pain (Kojima et al., 2009). Other complications include the increased need to compensate for the lost function of the affected body parts by overusing the non-affected parts.

On the long run, the disease burden may also encompass reduced productivity, disability, and financial difficulties (Young, 1993) and such functional impairments are believed to increase during the clinical course of RA (Wolfe, Hawley, & Cathey, 1991). For example, one study conducted on Egyptian patients with RA suggests that the condition has a significant negative impact of the quality of life, with disease duration being the most significant predictor (Gamal, Mahran, Abo El Fetoh, & Janbi, 2016).

2. Fibromyalgia

Fibromyalgia syndrome (FM; initially known as *fibrositis syndrome*) refers to a musculoskeletal chronic disorder characterized by a number of symptoms that have not received consensual recognition in the medical field yet. This is due to different factors contributing to the ambiguity of this pain condition. For example, up until today, there are no distinct diagnostic markers or indications to base the diagnosis on. This can be said to have increased the tendency to psychopathologize cases of FM (Webster, 2000). However, there is some pathogenic evidence that fibromyalgia is associated with elevated levels of chemokines, pro-inflammatory cytokines IL-1RA, IL-6 and IL-8 and reduced levels of anti-inflammatory cytokines (Rodriguez-Pintó, Agmon-Levin, Howard, & Shoenfeld, 2014). Other pathophysiological explanations involve disrupted activity of the hypothalamic-pituitary-adrenal axis (Griep et al., 1998). Looking into psychosocial risk factors, one prospective study was able to demonstrate the role of some risk factors in the onset of FM including baseline self-reported depression which was the most significant predictor of FM diagnosis at a 5.5-year follow-up. Their results also suggested that women with depressive symptoms were at a 6X higher risk of FM than women without depressive symptoms (Forseth, Husby, Gran, & Forre, 1999). Another study supported the view

of psychological risk factors and suggested that childhood abuse could predispose individuals for developing FM in adulthood (Eich, Hartmann, Muller, & Fischer, 2000).

Yunus and colleagues (1981) were among the very first researchers to examine the clinical profile of FM in a study that demonstrated clinical differences between patients with FM and normal controls. These include symptoms of fatigue, stiffness, pain, sleep disturbances, irritable bowel syndrome, headaches and 9 tender points that are assessed bilaterally (suboccipital muscle, anterior cervical region at C6, upper trapezius, supraspinatus muscle, parasternal at the second intercostals space, lateral epicondyle, upper outer quadrant of the gluteal muscles, greater trochanter and the medial fat pad of the knee or the vastus medialis muscle. More attention was then given to this new phenomenon, and in 1990 the American College of Rheumatology issued the criteria for the classification of FM (Wolfe et al., 1990). After studying 293 patients and 265 healthy controls, the committee concluded that the criteria would involve “1) widespread pain in combination with 2) tenderness at 11 or more of the 18 specific tender point sites”.

One review of different epidemiological studies of FM estimated the worldwide prevalence to be 2.7 % with a range of 0.4% to 9.3% and an average female-to-male ratio of 3:1 (Queiroz, 2013). Similar to RA, FM is associated with significant harmful dysfunction in terms of psychological distress and reduced productivity. This is evident in the higher prevalence of symptoms of depression and anxiety than in the general population (White, Nielson, Harth, Ostbye, & Speechley, 2002; Wolfe, Ross, Anderson, Russell, & Hebert, 1995) and the positive correlation between psychological distress and pain severity (White, Harth, Speechley, & Ostbye, 2000). This has been confirmed in a study of Egyptian patients that showed the significant impact of the disease burden on the quality of life in addition to a strong association

between severity of pain and severity of depression and anxiety (Helal, Mohasseb, El-Sawy, & Abdel-Fattah, 2014). Put together with other symptoms of distress that manifest on a daily basis such as occupational dysfunctions, disrupted family relationships, reduced activities, avoidance of physical activity, this means that FM has a significantly negative influence of the quality of life of patients. Fibromyalgia is also considered to be more detrimental than other rheumatic diseases, such as RA, in terms of the interference of symptoms in the daily functioning and the overall quality of life (Martinez, Ferraz, Sato, & Arta, 1995; Wolfe & Hawley, 1997). Taking this one step further, one study has looked deeper at the disease burden on the economic level and showed that almost half the sample missed at least 2 weeks/year at work because of their pain condition and that more than one fifth were not able to work at all (Arnold et al., 2008). Another study analyzed the themes identified in the narratives of patients with FM which involved having to abandon previous activities, the interconnectedness of symptoms, the interference of symptoms with daily functioning, burdening their families, emotional and psychological impacts, and the unpredictability and the invisibility of symptoms. Interestingly, some also stressed on the need to adopt a positive attitude directed towards more acceptance (Cunningham & Jillings, 2006).

II. Coping

One theory that attempted to explore adaption to pain is Lazarus and Folkman's (1984) stress and coping theory which suggests that adaptation is a by-product of an individual's stress experience, his/her appraisal and his/her means of coping to manage the demands of his/her condition. According to this theory, stress is defined as "a particular relationship between the person and the environment that is appraised by the person as exceeding his or her resources and endangering well-being" (p. 19). The second factor in this theory, appraisals, refers to the way an

individual perceives the stressor and his/her resources in response to the stressor. For example, one study demonstrated that the appraisal of pain as a “challenge” rather than a “threat” could predict problem-focused coping rather than emotion-focused coping, less depression and better self-esteem (Dysvik, Natvig, Eikeland, & Lindstrøm, 2005). This leads us to the third factor in the theory, coping, which the authors defined in terms of the cognitive and behavioral efforts to manage external and internal demands that are perceived as beyond the individual’s resources or capabilities.

Coping is conceptually defined as adaptively changing one’s cognitive and behavioral efforts to manage psychological stress. Speaking from an interactional model, coping is regarded as a dynamic process that involves continuous interactions between the individual, the stressor, and his/her environment. This process involves two kinds of appraisals; primary and secondary. Primary appraisals concern the perception of the stressor (i.e.: pain perception), whereas secondary appraisals concern whether the individual thinks he/she has the resources to manage it (Lazarus & Folkman, 1984). Looking at the functional role of coping when one is facing stressors, this has been articulated as “*just as a competent immune system heals by altering bodily equilibrium, so do adaptive coping mechanisms reduce stress by influencing subjective perception of one’s condition*” (Zyrianova et al., 2011, p. 204).

Different coping styles are broadly categorized either as *active* or *passive*. Active coping refers to strategies that involve taking initiative to manage one’s pain such as problem-solving and support-seeking behaviors. Passive, or emotion-focused, coping on the other hand refers to attempting to regulate negative emotions though withdrawing, wishful thinking, self-blame, catastrophizing, or cognitive disengagement (Smith, Lumley, & Longo, 2002). This kind of categorization is primarily based on the degree of internal or external control an individual exerts

to manage stressors. This means that, although research favors active coping in terms of the overall wellbeing outcome, different coping styles are not in themselves adaptive or maladaptive unless the stressor and the context are both considered (Zyrianova, Kelly, Sheehan, McCarthy, & Dinan, 2011). Another way of categorizing coping styles is as follows: flight/fight, repressive/defensive, submissive/aggressive, anger-in/anger-out, blunting/monitoring, negative/positive (De Boer, Slangen, & Van der Gugten 1990; Devoino, Alperina, & Pavina 2003; Jamner, Schwartz, & Leigh, 1988; Veenema, Koolhaas, & De Kloet, 2004; Zozulya et al., 1996). Other ways of coping can be examined separately such as *problem-focused (engaged) coping*, *avoidance/escape (disengaged) coping*, *support-seeking coping*, *spiritual/religious coping*, and *emotion-focused coping* (Au, Shardlow, Teng, Tsien, & Chan, 2013; Carroll, 2013; Dijkstra & Homan, 2016; Wortmann, 2013).

III. Personality

Personality can be generally defined as the distinctive differences between individuals in their patterns of feeling, thinking and behaving (American Psychological Association, 2017). One systematic model of studying personality is the Big Five-Factor model which identifies five major dimensions of personality (OCEAN); *openness to experience*, *conscientiousness*, *extraversion*, *agreeableness* and *neuroticism*.

It has been documented that the expression of some personality traits is conditional upon various situational factors (Magnussen & Endler, 1977). And although personality can be studied in different socioenvironmental contexts, it is suggested that its specificity becomes most evident under “stress” (Zozulya, Gabaeva, Sokolov, Surkina, & Kost, 2008). Looking deeper into the link between stress and personality, personality could be regarded as a risk factor associated with an increased likelihood of exposure to stress (Bolger & Schilling, 1991; Bolger & Zuckerman,

1995). In cases of exposure to daily stressors, personality can mediate the effect of stress through influencing its primary and secondary appraisals (Gunthert, Cohen, & Armeli, 1999), the choice of coping strategies (David & Suls, 1999; McCrae & Costa, 1986; O'Brien & DeLongis, 1996; Watson & Hubbard, 1996), and their outcome effectiveness (Bolger & Zuckerman, 1995; Gunthert et al., 1999).

As for outcomes in terms of response to stress, one study examining different combinations of personality traits showed that low neuroticism with high conscientiousness could predict the best response to stress as opposed to high neuroticism with low conscientiousness which predicts a high risk for poor coping (Vollrath & Torgersen, 2000). Similar results were generated in a sample of soldiers (Peng, Riolli, Schaubroeck, Spain, 2012).

When it comes to chronic pain as a serious long-term stressor, researchers suggest the expected personality profile of individuals with chronic pain to be as follows; *a vulnerable personality with high neuroticism, low extraversion, openness to experience and responsibility, and moderate agreeableness* (Pastor, Dolz, Guerra, & Carretero, 2010). Looking at the psychosocial and behavioral dynamics of chronic pain, and how such a personality profile can be reinforced, it seems that different factors contribute to the “self-propagating circle of illness behavior”. These include the sympathy and attention a patient receives from his/her surroundings besides the fact that other individuals may substitute him/her in different social duties making him/her, unintentionally, less and less functional (Black, 1982). In other words, there are secondary losses disguised as secondary gains.

IV. The Interaction between Coping and Personality

Costa, Somerfield, and McCrae (1996) regarded coping behavior and personality as part of an adaptational continuum, suggesting structural and conceptual links between both (Watson & Hubbard, 1996). One study has attempted to look beyond associations and correlations and demonstrate structural similarities between both constructs through joint factor analysis (Ferguson, 2001). The study showed that neuroticism loads positively with avoidance coping and that extroversion, on the other hand, was found to load with emotional and interactive coping. This is because extraversion is often associated with outgoingness and sociability which favors the use of problem-focused and emotion-focused coping rather than escape and/or avoidance (Karimzade & Besharat, 2011). Psychoticism was found to load with alcohol use and use of humor and was negatively associated with religiosity. The research concluded that personality and coping cannot be functionally separated and also highlighted the need for future research on “coping trait complexes”. Similarly, Eysenck’s model of personality (e.g. Eysenck, Barrett, Wilson, & Jackson, 1992; Eysenck, Eysenck, & Barrett, 1985) with its three dimensions (Neuroticism, Extroversion, and Psychoticism) has been linked to coping. Similar results have been demonstrated with regards to neuroticism and extroversion. As for psychoticism, it has shown to correlate with a mixture of the latter coping styles that are not entirely active or passive and to be evident in behaviors such as daydreaming and fasciation (Endler & Parker, 1990; Rim, 1986). It might be the case that personality affects not only coping, but also help-seeking behaviors, in different contexts. One study demonstrated a significant correlation between personality traits (openness, extroversion) and the use of specific complementary and alternative medicine among United States adults. For example, individuals who have openness to experience

are more likely to try such methods. This study also highlighted the significance of the findings in terms of implications on adherence to medication (Honda & Jacobson, 2005).

Two meta-analyses demonstrated a modest relationship between personality and coping (Connor-Smith & Flachsbart, 2007; Nes & Segerstrom, 2006). Moderators include age, nature of the stressor (type, severity and duration), time lag between the coping activity and the coping report and finally the nature of coping being situational or dispositional (Carver & Connor-Smith, 2010). For example, it has been hypothesized that people develop more skills that can help them cope with stress as they age. This becomes evident in less neuroticism and higher agreeableness and conscientiousness (McCrae et al. 2000, Roberts & Del Vecchio 2000). In this sense, the relationship between personality and coping is believed to be more significant among the youth than the elderly. More importantly, it has been argued that *chronic* stressors can best show the significance of the relationship between personality and coping because, unlike acute and short-term stressors that require specific coping behaviors, chronic stressors require more individual input and allow more room for individual differences to come into play (Gomez et al., 1999; Moos & Holahan, 2003; Murberg et al., 2002). In other words, the role of personality becomes more manifest when coping with long-term stressors as mentioned earlier.

V. Common Neuro-Endocrine Pathways between Coping and Personality and Neurochemical Mechanisms in Pain

Looking into the biological mechanisms of action associated with *passive coping*, there is significant activation of hypothalamic–pituitary–adrenal axis and low stimulation of sympathetic adrenal system (SAS), both associated with signs of immunosuppression. Such coping styles are also linked with decreased monocyte numbers, elevated eosinophile counts (Jamner, Schwartz, &

Leigh, 1988), and a stress-induced decrease in T-helper lymphocytes (Sakami et al., 2004). This has important implications in terms of reducing the efficacy of the immune system. On the other hand, *active coping* is linked with up-regulated functions of the immune system, or even hyper-activation of the immune responses which may lead, at the other extreme, to an increased risk of inflammatory and autoimmune diseases (i.e.: arthritis, allergy, asthma, atopic dermatitis) (Marques-Deak, Cizza, & Sternberg, 2005; Wilder, 2002). Similarly, research has always attempted to demonstrate a link between some personality traits and pathology. For example, it has been suggested that Type “A” personality, which involves hostility, difficult temperament, and competitiveness, puts an individual at a higher risk for coronary diseases (Friedman, Byers, Diamant, & Rosenman 1975; Irvine, Lyle, & Allon, 1982). On the other hand, individuals with type “C” personality, who suppress emotions, deny, avoid and rationalize are at a higher risk for infectious disease and cancer (Baltrusch, Stangel, & Titze, 1991). Looking at the biological mechanisms of action, neuroendocrine and immune pathways are involved as mediators. For example, type “A” personality is associated with elevated sympathetic nervous system activity, elevated sensitivity of β -adrenoreceptors (Catipović-Veselica et al., 1997; Le Melleo et al., 2001), high blood catecholamine levels (Friedman et al., 1975) and high urine testosterone (Zumoff et al., 1984). Put together, abnormal immune functioning may be associated with the development of depressive symptoms and, similarly, specific personality traits and coping styles may increase an individual’s risk of depressive symptoms either independently or as mediated by their neurophysiological influences on the immune system.

In terms of pain management, studies show that antidepressants may prove to be effective in relieving physical pain through some specific neurochemical mechanisms of action that are not a consequence of targeting depression (Pasternak, 1982) such as the potentiation of the

serotonergic system (Sulser & Sanders-Bush, 1971) and decreasing the sensitivity of alpha norepinephrine receptors which normally antagonize the analgesic system (Crews, & Smith, 1978).

VI. Coping, Personality and Well-being/Psychopathology

The impact of both coping and personality on the emotional wellbeing of different populations has been demonstrated in several studies. In psychiatric populations, one study suggested a link between religious/spiritual well-being, positive coping styles, specific personality traits (i.e.: conscientiousness, agreeableness, and openness) and a sense of coherence among addiction in-patients (Unterrainer, Lewis, Collicutt, & Fink, 2013). Similarly, individuals at risk of suicide are known to be characterized with high neuroticism which may explain why they seek coping strategies such as distancing, escape and avoidance (Mahapatra, Samantaray, & Mishra, 2016). Behavioral disengagement (Kaminsky, Robertson, & Dewey, 2006; Wadsworth & Compas, 2002), self-blame (Fear et al., 2009; TilghmanOsborne, Cole, Felton, & Ciesla, 2008) and denial (Burker, Evon, Losielle, Finkel, & Mill, 2005; Kortte, Wegener, & Chwalisz, 2003) have also shown to be linked with depressive symptoms in different age groups.

Research has also examined coping in the context of RA and has suggested coping to mediate health outcomes and to affect the overall quality of life (Becker et al., 2000; Jensen, Turner, Romano, & Karoly, 1991). Additionally, the link between RA severity and the severity of depressive symptoms has shown to be mediated by the patient's cognitive appraisal about their ability to cope with their condition and it has been demonstrated that symptomatic severity on its own could not predict depression (Smith et al., 1990). Another study supported a similar view and suggested that cognitive distortions could mediate between both variables (Smith,

Peck, Milano, & Ward, 1988). Such cognitive distortions could, for example, become evident in the patients' evaluations of their own disability and their satisfaction/dissatisfaction with their abilities (Blalock et al., 1988). Similarly, patients who pay more attention to their pain experiences and catastrophize them are more likely to report more intense pain than patients who uses more adaptive means of coping.

Moving to other liaison populations, similar results have been demonstrated. For example, less emotional stability, less agreeableness and more passive coping styles have also been associated with increased behavioral problems and symptoms of depression among adolescent burn victims (Liber, Faber, Treffers, & Loey, 2008). Likewise, neuroticism, extraversion, avoidant coping and approach coping could predict depressive symptoms in adult survivors of burn (Andrews, Browne, Drummond, & Wood, 2010). Moving to rather chronic conditions, research suggested a link between high extraversion, low neuroticism, high agreeableness and better quality of life among adolescents diagnosed with asthma (De Ven, & Engels, 2011). This was mediated by health behaviors such as symptoms reporting and restricting one's lifestyle. Similarly, personality and social resources have shown to affect the long-term emotional well-being of patients with breast cancer (Durá-Ferrandis et al., 2016). More in-depth research explained this in terms of trait optimism, positive reframing and religiosity (Urcuyo, Boyers, Carver, & Antoni, 2005). Another study suggested a significant negative relationship between escape–avoidance coping and mental and physical health measures in patients diagnosed with Hepatitis C as a chronic condition, whereas emotional stability and extraversion could predict better health outcomes (Cellar et al., 2016).

Similar findings suggesting a strong impact of both coping and personality on the emotional wellbeing of individuals have been demonstrated in a non-clinical sample as suggested

by a study showing a positive relationship between religiosity/spirituality and positive coping with stress (Malinovic, Fink, Lewis, & Unterrainer, 2016).

Going into more details, Roesch, Aldridge, Vickers, and Helvig (2009) examined the interaction between coping and personality and its effect on affect. Results show that trait-consistent coping could predict better affect than trait-inconsistent coping. In other words, individuals high in neuroticism may benefit more from avoidance coping, as a trait-consistent coping style, rather than engaged coping. The significance of the fit between coping and personality can be explained in terms of mediators. For instance, in one study task-oriented coping could mediate between conscientiousness and resilience, whereas emotion-oriented coping was more associated with low resilience (Campbell-Sills, Cohan, & Stein, 2006). Research shows that courage can be another mediator between personality and coping (Magnano, Paolillo, Platania, Santisi, 2017) through its impact on the use of self-directed strategies. Other studies showed that patients who use active coping through restructuring life goals, rather than by setting unrealistic hopes or engaging in self-blame, display less depressive symptoms (Parker et al., 1988)

Cultural factors represent another significant source of mediation in this complex process affecting both coping and personality. For example, Edwards, Moric, Husfeldt, Buvanendran, and Ivankovich (2005) studied pain-related differences between Hispanic, African American and White participants matched for sex, age, education, employment status, location and duration of pain. Findings suggested significant variation in their scores on the *Coping Strategies Questionnaire* (CSQ) Praying and Hoping sub-scale in which African Americans and Hispanics scored higher. More interestingly, the composite score was significantly negatively-correlated with pain intensity in the African American group, but not whites or Hispanics. This suggests

that coping techniques may differ depending on cultural differences that influence the *individual-in-context*.

VII. Significance

Given that “chronic and recurrent pain conditions are not simply temporal extensions of acute pain” (Williams, 2010, p.478) and based on the previous background and the fact that such concerns constitute an increasing alarm in modern societies (Stone, 1984), there is a weighty need to look beyond the medical model and to explore the psychosocial factors involved in the experience of chronic pain. More importantly, research suggests that depression affects up to more than 80% of individuals suffering from chronic pain (Bair, Robinson, Katon, & Kroenke, 2003; Williams et al., 2003) and that those with comorbid depression are likely to have worse prognosis than those without comorbid depression (Fishbain, Cutler, Rosomoff, & Rosomoff, 1997).

Previous research has attempted to explore the link between chronic pain and secondary depression through examining cognitive-behavioral mediators (Rudy, Kerns, Turk, 1988), effects on the quality of life (Elliott, Renier, & Palcher, 2003), and coping and adjustment (Rosenstiel & Keefe, 1983). However, a research gap exists in linking both coping and personality with depression outcomes in individuals with chronic pain. Additionally, most literature comes from Western samples that are not necessarily representative of other populations in different contexts. This is again based on the assumption that chronic pain experiences are not universal and that various socio-cultural factors may impact the experience of pain, the choice of coping style and possibly some personality traits. Therefore, this study aims to examine coping and its interaction with personality traits in an Egyptian sample given both the specificity and complexity of chronic pain.

VIII. Hypotheses

This study follows the “*Consequence Hypothesis*” explaining the link between chronic pain and depression in terms of depression being a consequence following the development of chronic pain. In this regards, it is hypothesized that:

1. Chronic pain is not the sole factor contributing to the development of depressive symptoms in the affected individuals, and different individual and background variables, coping styles and personality traits contribute to the degree of depressive symptoms, or resilience, in individuals with chronic pain.
2. The association between coping/personality and depressive symptoms will be more significant in individuals with longer duration of chronic pain. This is based on the background that higher chronicity allows coping and personality traits to become more manifest and influential.
3. Emotion-focused and escape coping (passive coping) will be more prevalent, given the hypothesized low perceived control over chronic pain and the cultural background which tends to adopt a more external locus of control, and this should predict high depressive symptoms. This is based on research showing an association about the type of coping and an individual’s locus of control which is culturally influenced; task focused coping was found to be more common among individuals with low external locus of control and lower depression, whereas emotion-focused coping was found to be more common among individuals with high external locus of control and higher depression (Leandro & Castillo, 2010).

Therefore, the conceptual framework guiding this study can be summarized in the figure below (figure 1). Severity of depressive symptoms is treated as the dependent variable, whereas independent variables, chronic pain, personality traits and coping style are treated as independent variables.

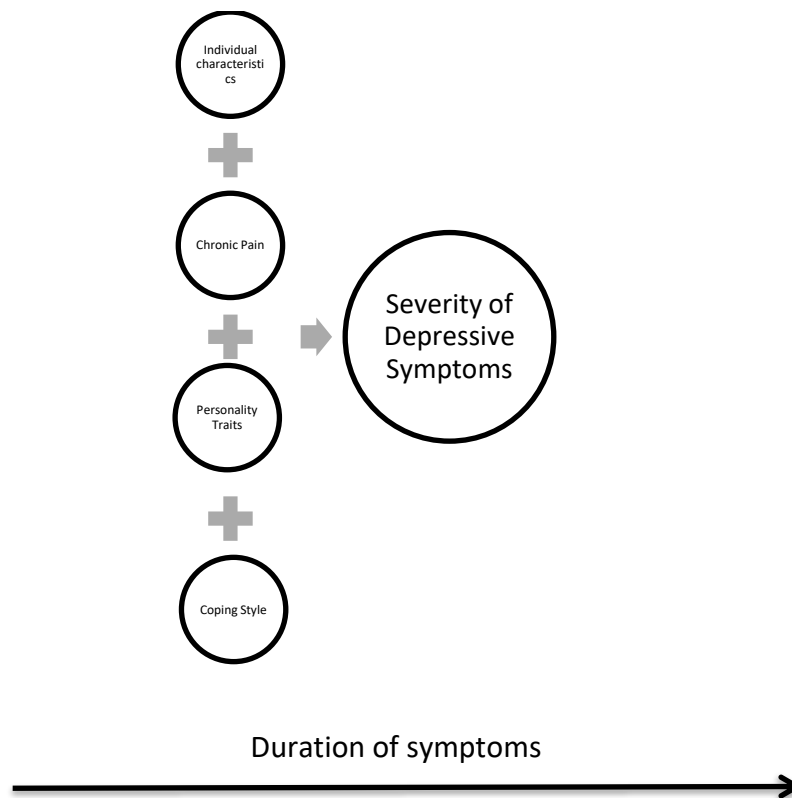


Figure 2: The conceptual framework suggesting factors that are hypothesized to have an influence on the outcome variable

B. METHODOLOGY

I. Type of Research and Statistical Analyses

This is primarily a regression study of the role of coping-related and personality-related factors in the development of depressive symptoms in individuals with chronic pain. Preliminary analyses were performed to generate descriptive data. Pearson correlations were also performed to test for correlations between the studied variables and to examine the theoretical link between

personality traits and coping styles as demonstrated in previous research. Additional linear regression analyses were used to study the influence of personality and coping variables on the degree of depressive symptoms as the outcome variable. Statistical Package for the Social Sciences (SPSS) was used for all data analyses.

For the purpose of doing linear regression analysis, some variables were adjusted in terms of encoding. These include educational attainment which was transformed from a 6-point scale (illiterate, primary, middle, high, university, post-grad) to a continuous variable representing minimum years of education of 0, 6, 9, 12, 16 and 18 years of education respectively. Similarly, marital status was transformed to a dummy variable; currently married, not currently married.

II. Participants and Sampling

The following a priori power calculations were conducted to determine the target sample size; a 9.9% margin of error, a 95% confidence level, an estimated population size of 20,000 based on Smith's and Torrance's (2008) estimated worldwide prevalence of 22.9%, knowing that sample size does not change significantly for populations larger than 20,000, and a 50% response distribution. This resulted in a sample size of 98 participants. Participants diagnosed with rheumatoid arthritis (RA) were recruited from the outpatient rheumatology clinics of two public hospitals (you can not name them, anonymity), one private hospital and one private rheumatology clinic in Cairo. Patients with FM were reached and contacted through a FM support group for patients living in Cairo.

Adults between 21-60 years were recruited through direct approaches of the researcher and referrals by rheumatologists. Inclusion criteria included the persistence of symptoms for at least 3 months as per the diagnostic guidelines of the International Association for the Study of

Pain (Treede et al., 2015) suggested for the International Classification of Diseases-11 (ICD-11), and symptoms had to be continuous or nearly continuous in terms of occurrence. Additionally, pain resulting from these symptoms should be non-psychological in nature and can be clinically and primarily attributed to their medical condition. Both generalized and localized pain was included. Participants were excluded in case of being diagnosed with a comorbid non-depressive psychiatric disorder and/or being at a significant suicidal risk, which might influence the overall clinical profile. Other exclusion criteria included having a terminal illness, life-threatening medical disorders, use of illicit drugs and/or alcohol, and significant cognitive impairment that becomes evident by clinical observation of the participant's orientation, registration and language. Given the aforementioned selection criteria, and given the time restraints and the limited access to the clinics, convenience sampling was used in order to verify the diagnosis.

Table 1 illustrates the descriptive statistics for the overall sample, the RA and the FM sub-sample. The vast majority of respondents were females and, as shown, the sub-samples were matched for sex and marital status, but not for age, educational attainment, and employment status. The mean age in the total sample was 38.94 years ($SD=9.66$) with a range of 21-60. In the RA sub-sample, it was 42.63 years ($SD= 9.72$) with a range of 28-60 and, in the fibromyalgia sub-sample, 35.4 years ($SD= 8.25$) with a range of 21-51. Move the above to the methods section. The table below shows descriptive statistics for the sample. Independent samples t- and chi-square tests were used to assess whether there were statistically significant variations between both sub-samples in terms of continuous and categorical variables respectively.

		Overall Sample		Rheumatoid Arthritis (N= 48)		FM (N= 50)		Sig. 2-tailed
		N	%	N	%	N	%	
Sex	Female	92	93.9	45	93.8	47	94	.959
	Male	6	6.1	3	6.3	3	6	
Marital Status	Married	73	74.5	42	87.5	31	62.0	0.50
	Single	19	19.4	3	6.3	16	32.0	
	Divorced	3	3.1	1	2.1	2	4.0	
	Widowed	3	3.1	2	4.2	1	2.0	
Educational Attainment	Illiterate	6	6.1	6	12.5	0	0.0	.000*
	Primary	4	4.1	4	8.3	0	0.0	
	Middle	2	2.0	2	4.2	0	0.0	
	High	18	18.4	15	31.3	3	6.0	
	University	54	55.1	17	35.4	37	74.0	
	Post-Grad	14	14.3	4	8.3	10	20.0	
Employment Status	Employed	43	43.9	12	25.0	31	62.0	.000*
	Unemployed	55	56.1	36	75.0	19	38.0	
		Mean	SD	Mean	SD	Mean	SD	Sig. 2-tailed
Age		38.94	9.66	42.63	9.72	35.4	8.25	.000*
Duration of Pain in Years		7.25	6.80	6.85	6.37	7.64	7.23	.570
Age of Onset		31.69	10.07	35.77	10.55	27.76	7.89	.000*

Table 3: Descriptive statistics of the demographic and general clinical characteristics of the overall sample, the RA sub-sample and the FM sub-sample * statistically significant result

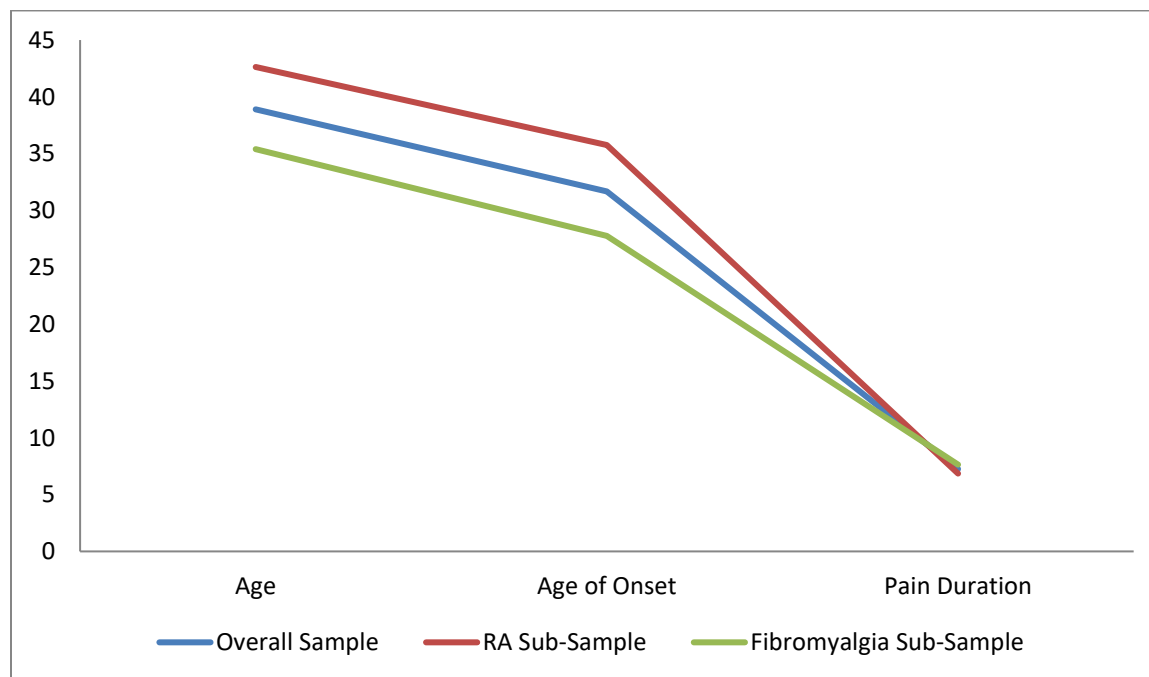


Figure 2: Mean age, age of onset and pain duration in the overall sample, the RA sub-sample and the FM sub-sample

As shown in figure 2, there were significant differences in age-related variables across both sub-samples in addition to the mean age of participants. Mean ages of onset were 31.69 (SD= 10.07), 35.77 (SD= 10.55) and 27.76 (SD= 7.89). Although not statistically significant, the duration of pain was higher in the FM sub-sample, 7.64 (SD= 7.23), than the overall sample, 7.25 (SD= 6.80), and the RA sub-sample, 6.85 (SD= 6.37).

III. Measures and Methods of Analysis

Below are the psychometric tools that were used to assess different variables in this study. For cultural appropriateness and readability, scales assessing coping and personality were translated and then back translated between English and Arabic by two independent translators with graduate-level background knowledge in mental health.

a. Brief Big Five Inventory (BFI-10)

As an abbreviated version of the well-renowned Big Five Inventory (BFI; John, Donahue, & Kentle, 1991.), the brief version of the Big-Five Inventory (BFI-10; Rammstedt & John, 2007) was used to assess different personality dimensions in terms of *extraversion*, *agreeableness*, *conscientiousness*, *neuroticism*, and *openness to experience*. It consists of ten of the original 44 standardized BFI items with two items representing each dimension one keyed/scored in the positive direction and one keyed/scored in the negative direction. Responses are scaled on a Likert-type scale ranging from 1 (fully disagree) to 5 (fully agree). The BFI-10 items were scored and reverse scored as per the instructions which classify items into the aforementioned five personality dimensions (Rammstedt & John, 2007). And although the brief BFI yielded lower effect sizes than the full BFI-44, it still retained high levels of reliability and validity and is

recommended for research use especially when there are time constraints (Rammstedt & John, 2007).

BFI-10 was used in recent studies examining pain-related and stress-related issues including a sample of rheumatic disease patients (Aslaksen & Lyby, 2015; Stamp, 2016; Vollmann, Pukrop, & Salewski, 2016). However, to our current knowledge, no Egyptian studies have used the BFI-10 in assessing personality dimensions.

b. Pain Coping Inventory (PCI)

For the assessment of coping styles, the Pain Coping Inventory (PCI; Kraaimaat & Evers, 1996) was administered. The PCI is a 33-item scale that consists of six sub-scales covering different cognitive and behavioral coping strategies for individuals dealing with pain. Each item represents one means of coping and is rated in terms of frequency on a 4-point Likert scale; 1 (hardly ever), 2 (sometimes), 3 (often), and 4 (very often). PCI items are classified into 6 factors based on the factor loadings and internal consistencies demonstrated by Kraaimaat and Evers (2003). These are Pain Transformation (items 15, 16, 18, 30), Distraction (items 9, 19, 20, 21, 22), Reducing Demand (items 2, 3, 4), Retreating (items 10, 11, 12, 13, 14, 32, 33), Worrying (items 17, 23, 24, 25, 26, 27, 28, 29, 31) and Resting (items 1, 5, 6, 7, 8). The PCI items were further categorized into two factors based on the work of Perrot and colleagues (2008) which demonstrated the structural validity of the PCI and its application for differentiating between active and passive coping. Hence, items were reclassified again into two those categories; active (items of the Pain Transformation, Distraction and Reducing Demand subscales) and passive (items of the Retreating, Worrying and Resting subscales). Composite scores of the active and passive subscales can be generated by summing up the non-weighted scores of the respective

subscales; the possible score ranges for the active and passive subscales are 12-48 and 21-84 respectively.

Research confirms the construct and criterion validity of the PCI active and passive subscales (Kraaimaat et al., 1997; Kraaimaat et al., 2003). Additionally, this tool was used in different studies examining rheumatic diseases and other pain conditions (Bot et al., 2005; Evers, Kraaimaat, Geenen, Jacobs, & Bijlsma, 2003; Perrot et al., 2008; Steultjens, Dekker, & Bijlsma, 2001; van der Roer et al. 2008; Meeus, Nijs, Van Oosterwijck, Van Alsenoy, & Truijen, 2010). However, to our current knowledge, no Egyptian studies have used the PCI in the assessment of pain coping.

c. The Hamilton Depression Rating Scale (HDRS)

For the assessment of the severity of depressive symptoms, the Hamilton Depression Rating Scale (HDRS), the “gold standard” for assessing depression, was administered following a structured interview guide (Williams, 1996). This well-established tool was initially developed by Hamilton (1960) to assess the severity of depression, rather than to determine caseness. The HDRS version used consists of 17 items targeting different symptoms of depression and inquiring about their severity over the past week. Nine items are scored on a five-point scale, ranging from 0 to 4 and eight items are scored on a three-point scale, ranging from 0 to 2. Scoring is based on the 17-item scale with a range of 0-52. An overall score between 0–7 is considered as being normal, 8–16 suggests mild depression, 17–23 suggests moderate depression and scores over 24 are indicative of severe depression (Zimmerman, Martinez, Young, Chelminski, & Dalrymple, 2013).

In psychiatric research, one Egyptian study demonstrated an average score of 22.4 (SD= 5.9) among patients with depression suggesting this relatively “low” score to be influenced by transcultural differences in defining and assessing emotions (Arafa, 1978). A latter study suggested an average total score of 30.3 (SD= 5.62) in patients with major depression (El-Rashidi, Wasfy, Askar, El-Bakry, & Hashem, 1993) and questioned the cultural sensitivity of some items when it comes to assessing depression. The decision was still made to use the HDRS for various reasons. First, it is an accurate tool to determine severity of depression, rather than caseness as stated earlier, and therefore, it is an appropriate outcome measure in relation to the research hypothesis. It also assesses different symptoms of depression including affective, cognitive, behavioral and somatic symptoms. And as a clinician-administered test, it limits the variations that might result from the subjective reporting of individual respondents. Additionally, it has established high validity and reliability in different studies (Kobak, 2010) including studies with chronic pain conditions patients (e.g.: Bagnato et al., 2015; Isik, Koca, Ozturk, & Mermi, 2007; Krishnan et al., 1985; Rod, 2016).

IV. Procedures

After providing written informed consent to participate in the study, the previous tools were administered in an interview format and respondents were additionally requested to provide information about their sex, age, marital status, educational attainment, employment status, diagnosis (either rheumatoid arthritis or FM), duration of symptoms and use of pain medications. The average time spent per interview was 30-45 minutes and data was collected over a period of 10 weeks starting in December 2017 and ending in March 2018 by two interviewers. The first interviewer is the primary investigator of this study who also provided hands-on training to a

second interviewer through illustration, observation and practice based on the structured interview guide (Williams, 1996).

V. Ethical Considerations

This study was applied in accordance with the American Psychological Association code of ethics in terms of the general ethical principles and, more specifically, the Research and Publication codes (APA, 2002). An IRB approval was obtained from the American University in Cairo (AUC) prior to data collection. Participants were requested to provide informed consent prior to their inclusion in the study, were informed about the voluntary nature of participation, and that they could withdraw anytime during the research period without any consequences. With the exception of one patient, all participants accepted to take part in the study.

C. RESULTS

I. Depressive Symptoms

Descriptive statistics for the HDRS raw scores are summarized below in table 2. Item HDRS 16 (Insight) has been omitted from the following analyses for methodological concerns about it being an invalid variable with all participants scoring zeros.

	Overall Sample		Rheumatoid Arthritis (N= 48)	Fibromyalgia (N= 50)		Sig. 2-tailed	
Total Hamilton Depression Rating Scale (HDRS)	15.66	5.61	15.19	5.76	16.12	5.48	.413

Table 4: Descriptive statistics of illness-related, coping and personality variables of the HDRS scores

Looking deeper into the severity on each of the symptoms of depression, figure 3 summarizes the mean score on each of the HDRS items. Note that nine items are scored on a five-point scale, whereas the rest of items are scored on a three-point scale, ranging from 0 to 2. The scores for HDRS 14 (General Somatic Symptoms) were then subtracted from the total

HDRS scale to be used as an indication of the severity of somatic symptoms of pain. Test of bivariate Pearson’s correlation showed a statistically significant positive correlation with [HDRS total – HDRS 14] (Pearson’s r of .995 and Sig. of 000).

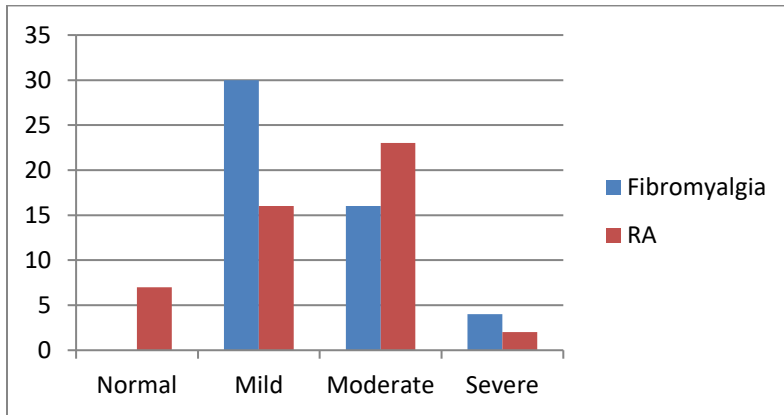


Figure 3: Frequency distribution of the total HDRS scores in both sub-samples

Looking deeper into the relationship between duration of pain and the severity of depressive symptoms, the bivariate Pearson correlation test was conducted to test the relationship between duration of pain and different HDRS items; however, it yielded no significant results.

II. Personality traits

Scores on each of the BFI-10 subscales are summarized in table 3.

	Overall Sample		Rheumatoid Arthritis (N= 48)		Fibromyalgia (N= 50)		Sig. 2-tailed
	Mean	SD	Mean	SD	Mean	SD	
BFI Extraversion Subscale	6.30	2.02	6.31	2.14	6.28	1.93	.937
BFI Agreeableness Subscale	6.86	1.78	6.94	1.60	6.78	1.95	.664
BFI Conscientiousness Subscale	6.98	1.85	6.77	1.61	7.18	2.05	.276
BFI Neuroticism Subscale	7.42	1.87	7.04	1.99	7.78	1.69	.050
BFI Openness to Experience Subscale	6.76	2.07	6.35	1.94	7.14	2.14	.060

Table 3: Mean scores on the BFI personality dimensions

III. Pain Coping

Mean scores on the PCI subscales are illustrated in table 4. It is also important to note that all participants had been using pain medications during the data collection phase.

	Overall Sample		Rheumatoid Arthritis (N= 48)		Fibromyalgia (N= 50)		Sig. 2-tailed
	Mean	SD	Mean	SD	Mean	SD	
PCI Pain Transformation Subscale	8.95	2.48	8.85	2.37	9.04	2.60	.713
PCI Distraction Subscale	12.02	3.09	11.75	3.14	12.28	3.06	.400
PCI Reducing Demand Subscale	7.19	2.56	7.40	2.54	7.00	2.60	.448
PCI Retreating Subscale	17.48	4.22	16.48	4.21	18.44	4.03	.021
PCI Worrying Subscale	22.01	5.50	21.46	4.83	22.54	6.06	.333
PCI Resting Subscale	12.84	2.97	12.31	2.84	13.34	3.03	.087

Table 4: Descriptive statistics of the PCI sub-scales in the overall sample, the RA sub-sample and the FM sub-sample

In terms of passive and active coping styles, and as shown in table 5, participants with FM scored significantly higher on passive coping than individuals in the RA sub-sample.

	Overall Sample		Rheumatoid Arthritis		Fibromyalgia		Sig. 2-tailed
	Mean	SD	Mean	SD	Mean	SD	
Passive Coping	52.33	8.63	50.25	7.37	54.32	9.33	.019
Active Coping	28.16	5.43	28.00	5.82	28.32	5.08	.772

Table 5: Descriptive statistics of the total sample, the RA and the FM sub-samples in terms of passive vs. active coping

		Passive Coping	Active Coping
Passive Coping	Pearson's r	1	.151
	Sig. (2-tailed)		.138
Active Coping	Pearson's r	.151	1
	Sig. (2-tailed)	.138	
Age	Pearson's r	-.338(**)	-.180
	Sig. (2-tailed)	.001	.078
Age of Onset	Pearson's r	-.287(**)	-.068
	Sig. (2-tailed)	.004	.507
Duration of Pain	Pearson's r	-.056	-.156
	Sig. (2-tailed)	.587	.125
Total Extraversion	Pearson's r	-.191	.142
	Sig. (2-tailed)	.059	.163
Total Conscientiousness	Pearson's r	-.216(*)	-.007
	Sig. (2-tailed)	.033	.947
Total Agreeableness	Pearson's r	-.016	.197
	Sig. (2-tailed)	.878	.051
Total Neuroticism	Pearson's r	.309(**)	-.112
	Sig. (2-tailed)	.002	.271

Total Agreeableness	Pearson's r	.121	1											
	Sig. (2-tailed)	.237												
Total Conscientiousness	Pearson's r	.043	.118	1										
	Sig. (2-tailed)	.674	.247											
Total Neuroticism	Pearson's r	-.147	-.201(*)	-.018	1									
	Sig. (2-tailed)	.147	.047	.858										
Total Openness to Experience	Pearson's r	-.007	.035	.052	.125	1								
	Sig. (2-tailed)	.944	.731	.608	.220									
Total Pain Transformation	Pearson's r	-.042	.129	-.020	-.115	.128	1							
	Sig. (2-tailed)	.680	.206	.842	.258	.209								
Total Distraction	Pearson's r	.183	.159	.133	-.122	.149	.275(*)	1						
	Sig. (2-tailed)	.071	.117	.191	.230	.144	.006							
Total Reducing Demand	Pearson's r	.120	.101	-.156	.022	.116	.123	.089	1					
	Sig. (2-tailed)	.239	.323	.126	.833	.256	.227	.383						
Total Retreating	Pearson's r	-.274(*)	.087	-.019	.089	.055	.188	.126	-.071	1				
	Sig. (2-tailed)	.006	.392	.856	.382	.591	.064	.215	.489					
Total Worrying	Pearson's r	-.111	-.054	-.195	.404(*)	.219(*)	.160	-.055	.157	.208(*)	1			
	Sig. (2-tailed)	.278	.601	.055	.000	.031	.115	.594	.122	.039				
Total Resting	Pearson's r	.039	-.071	-.241(*)	.024	.042	.017	.101	-.039	.352(*)	-.024	1		
	Sig. (2-tailed)	.703	.489	.017	.818	.681	.868	.321	.702	.000	.815			

	tailed)													
HDRS Total	Pearson's r	-.268(*)	-.007	-.105	.262(*)	.058	.086	-.048	-.075	.189	.335(*)	-.028	1	-
	Sig. (2-tailed)	.008	.946	.303	.009	.573	.399	.641	.463	.062	.001	.784		
Age	Pearson's r	-.040	.086	-.091	-.253(*)	-.289(*)	-.091	-.205(*)	-.046	-.190	-.308(*)	-.143	-.166	1
	Sig. (2-tailed)	.698	.401	.375	.012	.004	.373	.043	.652	.061	.002	.160	.102	

Table 7: Results of the Pearson bivariate correlation between sub-scales of the BFI, sub-scales of the PCI, Total HDRS score and age. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The effect of trait-consistent coping on depressive severity was also examined. Mean active coping and passive coping scores were generated. For each individual, the dominant style was identified based on the difference between both scores. In terms of personality traits, mean scores for extraversion and neuroticism were also generated. To qualify for trait-consistent coping, an individual needs to be dominant in active coping and extraversion or passive coping and neuroticism. Results are summarized in table 8; although individuals who showed trait-inconsistent coping scored higher on depressive symptoms, the difference between both groups was not statistically significant.

	Mean HDRS Score	SD	Sig. 2-tailed
Coping-Personality Fitness	15.61	5.37	.796
No Coping-Personality Fitness	15.94	6.33	

Table 8: Goodness of fit between coping and personality and mean HDRS scores

V. Linear Regression Analysis

A multicollinearity diagnostic was performed to investigate any potential significant correlations between the independent variables using the variance inflation factor (VIF), and no multicollinearity has been detected. A test of outliers was also conducted and two cases were identified in terms of their total HDRS score (30 and 32). After the exclusion of those two cases,

linear regression was then performed. Table 9 summarizes the three models examined using linear regression.

Variables	Model 1			Sig.	Model 2			Sig.	Model 3			Sig.
	B	SE (B)	β		B	SE (B)	β		B	SE (B)	β	
Constant	14.928	2.820		.000	9.850	4.034		.017	11.792	4.160		.006
Extraversion	-.550	.256	-.214*	.034	-.488	.256	-.190*	.059	-.504	.250	-.196*	.047
Neuroticism	.529	.278	.190*	.060	.390	.286	.140	.176	.303	.282	.109	.286
Passive Coping					.110	.063	.180*	.085	.081	.064	.134	.205
Married or Unmarried									2.510	1.230	.210*	.044
Years of Education									-.205	.111	-.180*	.067
R Square	.093				.122				.180			
Adjusted R Square	.073				.093				.135			
ANOVA p-value	.011				.007				.003			

Table 9: Linear regression summary for variables predicting HDRS total scores (*p <0.1, ** p <0.05)

Based on previous literature supporting the mediational role of coping and cognitive appraisals in predicting health outcomes (i.e.: Smith et al., 1990) and given that it had significant correlational relationships with each of the other variables, passive coping was tested as a mediator in the regression model. This test of mediation was conducted by comparing between two models ($HDRS\ total = constant + Neuroticism + Extraversion$ versus $HDRS\ total = constant + Neuroticism + Extraversion + Passive\ Coping$). The reduced significance of Neuroticism and Extraversion when Passive Coping was added to the model explains its mediational effect. However, since it lacks a significant correlation with Extraversion, Passive Coping appears to have a mediational effect only on Neuroticism.

Taking this one step further, and given its significance role as a mediator in the model, passive coping was regressed as the outcome variable in another model testing independent variables that are hypothesized to be influential on the degree of passive coping. Below is a summary of the regression model. The results show that the independent variables used in the first regression analysis could also predict passive coping as the outcome variable.

	Model 1			Sig.	Model 2			Sig.
	B	SE (B)	B		B	SE (B)	β	
Constant	48.750	4.610		.000	57.309	6.676		.000
Neuroticism	1.405	.439	.305**	.002	.919	.431	.199**	.036
Conscientiousness	-.981	.444	-.210**	.030	-1.216	.422	-.261**	.005
Age					-.213	.087	-.238**	.017
Married or unmarried					3.958	1.922	.201**	.042
R Square			.139				.258	
Adjusted R Square			.121				.226	
ANOVA			.001				.000	

Table 10: Linear regression summary for variables predicting passive coping (*p <0.1, ** p <0.05)

D. DISCUSSION

I. Findings

The present study aimed to expand the knowledge base about chronic pain in Egypt through examining the degree of comorbid depressive symptoms in relation to coping styles and personality traits. Overall, results partially confirm the initial hypotheses in terms of the effect of coping and personality on the severity of depressive symptoms, and the higher prevalence of passive coping, rather than active coping, among chronic pain patients. Other interesting findings are discussed below with reference to the literature.

First of all, results are consistent with those from previous studies suggesting high prevalence of depressive symptoms in patients with chronic pain conditions. Looking at previous research examining depressive symptoms in RA patients, one study showed a mean HDRS score of 10.4 and a SD of 6.3 (Bagnato et al., 2015). Another study suggested a mean HDRS score of 17.48 and a SD of 1.86 and demonstrated a positive correlation between disease duration and the total HDRS score (Isik et al., 2007). The present study suggests a mean score that falls within this range reflecting mild to moderate levels of depression in both sub-samples. Findings also generally support the view that there are some psychological similarities between people with chronic pain regardless of the primary etiology (Hendler, 1982); however, some differences are

still worth noting. For example, higher depressive symptoms were reported by patients with FM than patients with RA; this is in line with a previous study suggesting similar results (Hudson, Hudson, Pliner, Goldenberg, & Pope, 1985). In terms of duration of pain, it was initially hypothesized to mediate between pain and depressive symptoms; however, no such link has been demonstrated.

Similar to the hypothesized profile for individuals with chronic pain, the present study suggests neuroticism being the most dominant personality dimension and extraversion being the least. This study and previous research also demonstrated an association between neuroticism and passive forms of coping (Costa & McCrae, 1989; Endler & Parker, 1990). This is supported by Gray's (1987) conceptualization of the behavioral inhibition system (BIS) which postulates that some neuropsychological processes mediate an individual's response to anxiety-provoking stressors to produce avoidance behaviors. On the other hand, research shows an association between extraversion and the use of active coping in managing stressful life events (Amirkhan, Risinger, & Swickert, 1995; Rim, 1987) which is a strong predictor of better outcomes. Predictions were significant and in the theorized direction in terms of the role of high neuroticism and low extraversion in predicting the severity of depressive symptoms. This link can be further illustrated in terms of the mediational role of coping behaviors and the role both personality dimensions play in determining the nature and effectiveness of how an individual cope with chronic pain as a stressor. In this regard, neuroticism is believed to predict mood pathologies (Vollrath and Torgersen, 2000; Clark, Watson, & Mineka, 1994) through the mediation of ineffective passive coping strategies (Bolger, 1990; Bolger & Zuckerman, 1995).

That being said, this study sheds light on passive coping as a factor that is significantly contributing to comorbid depression in chronic pain. Findings support the hypothesis that passive

coping is more prevalent than active coping with an estimated ratio of 2:1 and a significantly higher prevalence in the FM subsample. Looking into the building blocks of passive coping in terms of primary and secondary appraisals, it can be argued that individuals high in passive coping have negative cognitions about their pain experiences, their ability and/or the availability or resources to manage this pain and that, therefore, they perceive the stressor as a “threat” rather than a “challenge”. From a cognitive model, this explains the association between passive coping, particularly worrying, and worse mental health outcomes (Skinner, Edge, Altman, & Sherwood, 2003; Smith, Wallston, Dwyer, & Dowdy, 1997). Through its mediational effect, coping may also explain the link between the “*Big Two of Personality*” (Extraversion and Neuroticism) and the “*Big Two of Affect*” (Positive and Negative affect) as suggested by Watson and Hubbard (1996). Nonetheless, this finding can also be interpreted as suggesting that individuals with less depressive symptoms are more capable of using active coping than individuals with high depressive symptoms (Smith et al., 2002).

Contrary to the notion that passive coping is associated with older age (Carver & Connor-Smith, 2010; LaChapelle & Hadjistavropoulos, 2005; Martin et al., 2008), findings suggest a negative correlation between age and passive coping. It has to be noted, however, that this finding does not necessarily mean a tendency towards active coping since both constructs are believed to be independent, at least as measured by the assessment tool used in this study. This finding may also support the assumption that individuals develop more advanced coping skills as they age and that this inverse link between age and passive coping is potentially mediated by lower levels of neuroticism. In the best case scenario, these skills are adaptive, may predict more acceptance, and are supported by a personality profile low in neuroticism and high in agreeableness and conscientiousness (McCrae et al. 2000; Roberts & Del Vecchio, 2000).

Looking into the demographic characteristics of the sample, several significant variations were evident. For example, although the discrepancy in the gender ratio could be misleading, it still reflects an exaggerated image of the gender ratio in the prevalence of both conditions at the national and global levels. Moving to other variables, differences in educational attainment and employment status between the RA and the FM sub-samples are possibly influenced by different data collection sites that attract patients from various socioeconomic backgrounds. Such statistically significant differences may reflect the demographic variables in patients with RA who visit the outpatient clinics in public hospitals; patients with limited educational attainment and usually, if females, unemployed. On the other hand, patients with FM were recruited from an upper-middle class support network and had higher levels of education and employment. Given the diagnostic ambiguity of FM, higher educational attainment among patients with FM may also reflect the participants' curiosity for knowledge and medical awareness. This has been confirmed by many respondents who, during the interview, reported "reading about FM before seeing a doctor". The higher frequency of unmarried females in the FM group may be attributed to two factors; the younger mean age of the sub-sample and/or the perceived burden and stigma attached to the condition which makes it difficult for patients to disclose it to their potential partners as part of their identity.

Despite the similar mean duration of pain, the lower mean age (35.4 years) and mean age of onset (27.76 years) in the FM group may be attributed to epidemiological factors that are not necessarily influenced by sociodemographic variables. For example, it has been argued that various psychological factors are associated with the onset of symptoms of FM; however, the knowledge about the biological mechanisms of action is still limited and, therefore, early onset of symptoms cannot be empirically justified. One hypothesis explains the onset in terms of

changes in the responsiveness of the hypothalamic-pituitary-adrenal stress axis (Griep et al., 1998) which still requires further research.

In addition to the previously discussed pain-related, coping-related and personality-related variables, this study draws to our attention the role of social determinants of mental health. Such factors may constitute the social, economic and physical environment in which the patients live and which act as protective and/or risk factors (World Health Organization [WHO], 2014). For example, marital status has shown to be a strong predictor of depressive symptoms with unmarried women being at a higher risk of more depressive symptoms. This may reflect the psychosocial dynamics associated with spinsterhood in the Egyptian society and the “pressure to disclose their condition to their potential partners” as reported by five participants. On a similar note, Furthermore, financial costs of treatment were among the most reported concerns by RA participants. This is understood given that the lowest annual treatment cost of biological therapies in Egypt is 30,812 LE/patient (Metry, Elsis, & ElShafei, 2017) and that, as per the protocol of the Egyptian ministry of health, these medications are not funded by the state which adds to the burdens of low-income patients (Elfiky, 2017). In this regard and speaking from a biopsychosocial perspective, it can be concluded that the etiology of depressive symptoms cannot be attributed to the clinical profile alone, but rather more holistically to various individual, social, and clinical factors. This is especially significant because culture does not only influence the disease burden, but also the patients’ means of daily coping. This has been evident in the interview narratives; for example, spiritual themes were common and one participant stated “*Complaining to anyone, but God, is humiliating. Nobody will ever understand your pain, they may show sympathy, but they will never feel your pain*”.

II. Implications

This study offers an understanding of the clinical presentation of Egyptian chronic pain patients. The information can be taken into consideration when providing mental health services for the management of depressive symptoms in this at-risk population, especially in an era when liaison psychiatric services are developing rapidly both in Egypt and all over the world. This study may also suggest predictors for identifying individuals with chronic pain who might be at a higher risk for experiencing depressive symptoms based on their clinical and psychological profiles. Although such psychological factors have shown to influence the severity of depressive symptoms, research gives hope that such variables are still open to change through one's process of adjustment that can be catalyzed through mental health services. For example, research supports the effectiveness of acceptance and commitment therapy in managing chronic pain-related disability, depression, and anxiety through the mediation of higher levels of psychological flexibility (Vowles, Witkiewitz, Sowden, & Ashworth, 2014). So, based on the study findings, it is suggested that a working alliance is established between mental health professionals and physicians working with chronic pain and that pain management interventions attempt to adjust passive coping strategies (Keefe & Caldwell, 1997) in order to lessen the interference of pain and depressive symptoms with the individual's daily functioning.

III. Limitations of Research

Despite its interesting findings, the present study has a number of limitations. First, when looking at the functioning of an individual with chronic pain, it is important to examine his/her premorbid adjustment which this study lacked due to its limited design and timeframe. For example, employment history, family background, psychiatric history, high-risk behaviors,

relationship history, financial conditions, sexual functioning, sleep and weight should all be assessed in order to gain a good image of the individual's functioning before and after the diagnosis (Hendler, 1982) and, therefore, conclude that variations can be attributed to the disease burden. Second, the relatively small sample size, due to time constraints and limited access to patient populations, made it essential to tolerate a higher statistical margin of error. This study also lacked a control group for comparison, participants were already using pain medications with different dosages affecting their overall clinical profile, and they were not inquired about their current or previous use of mental health services (i.e.: psychotherapy, counseling). Additionally, participants were not matched for education and employment given the nature of the data collection sites which attracted members of different socio-economic backgrounds. In this regard, it is also possible that some of the observed findings were in some way influenced by such demographic variables. Another potential limitation of this study is the disproportionate gender ratio which deprived it from generating data on potential gender differences, especially with the significantly higher prevalence of depressive symptoms among females. Finally, the variation accounted for by the model was modest and, therefore, more work is needed in order to demonstrate the significance of these findings and/or to demonstrate the mediating influence of other factors that have not been covered in this study.

IV. Future Research

Future research should examine more specific mediators between chronic pain and depression, especially those that are believed to be culturally-influenced. Other outcome variables also need to be examined in order to bridge the wide research gap in the field of chronic pain in Egypt. These may include, but are not limited to, pain intensity, sleep disorders, suicide risk, disability, and comorbid anxiety. Finally, as an area that remains to be vague,

studies should also attempt to examine the dynamics of the relationship between psychiatric disorders and chronic pain and to demonstrate causal links, if any.

V. Conclusion

To our knowledge, this is the first study on coping styles and personality traits associated with chronic pain in Egypt. Although it provides some data on the dynamics between both variables and how they can predict depressive symptoms, it also highlights the research gap in this area. It confirms previous literature on the psychological burden of chronic pain; however, the findings of this study suggest some amendments to the initially hypothesized conceptual framework and, therefore, western literature should be dealt with cautiously given that cultural sensitivity of the studied topic. The final model draws to our attention the significance of unmarried status, more years of education, high neuroticism, low extraversion, and high passive coping in predicting the severity of depressive symptoms in patients with chronic pain. In this regard, it can be confidently argued that the disease burden is influenced by psychosocial factors that, either directly or indirectly, amplify the complications of chronic pain.

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Appendices

Appendix A – Informed Consent

الجامعة الأمريكية بالقاهرة

استمارة موافقة مسبقة للمشاركة في دراسة بحثية

عنوان البحث : العلاقة ما بين سمات الشخصية، وأنماط التأقلم والأعراض الاكتئابية لدى مرضى الألم المزمن

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انت مدعو للمشاركة في دراسة بحثية عن العلاقة ما بين سمات الشخصية، وأنماط التأقلم والأعراض الاكتئابية لدى مرضى الألم المزمن.

هدف الدراسة هو دراسة بعض العوامل المرتبطة بظهور الأعراض الاكتئابية لدى مرضى الألم المزمن.
نتائج البحث قد تنشر في دورية متخصصة أو مؤتمر علمي أو ربما كليهما.

المدة المتوقعة للمشاركة في هذا البحث هي حوالي 15 دقيقة.

اجراءات الدراسة تشمل الإجابة على الاستبيان وإجابة الأسئلة.

المخاطر المتوقعة من المشاركة في هذه الدراسة: لا توجد مخاطر متوقعة من المشاركة في هذه الدراسة.

الاستفادة المتوقعة من المشاركة في البحث: لا توجد استفادة متوقعة من المشاركة في هذه الدراسة.

السرية واحترام الخصوصية: المعلومات التي ستدلى بها في هذا البحث سوف تكون سرية.

■ إذا زادت المخاطر المتوقعة نتيجة هذا البحث عن الحد الأدنى المقبول، سيتم تحويل المشاركين للعلاج النفسي بدون مقابل مادي من خلال تحويل من الباحث الرئيسي، ريم ضيف.

أي أسئلة متعلقة بهذه الدراسة أو حقوق المشاركين فيها أو عند حدوث أى اصابات ناتجة عن هذه المشاركة يجب ان توجه الى ريم ضيف، الباحث الرئيسي، 01002402395.

إن المشاركة فى هذه الدراسة ماهى الا عمل تطوعى, حيث أن الامتناع عن المشاركة لا يتضمن أى عقوبات أو فقدان أى مزايا تحقق لك. ويمكنك أيضا التوقف عن المشاركة فى أى وقت من دون عقوبة أو فقدان لهذه المزايا.

الامضاء:

اسم المشارك :

التاريخ :

Appendix B – Questionnaire Basic Information

لا تبدأ الاستبيان إذا كنت

- أقل من 21 سنة
- أكبر من 60 سنة
- تم تشخيصك بإحدى الاضطرابات النفسية باستثناء اضطرابات الاكتئاب
- تتلقى علاج نفسي أو دوائي لاضطراب نفسي
- في مرحلة متأخرة من إحدى الأمراض المهددة للحياة
- تتعاطى المخدرات أو مدمن للكحوليات
- مقبل على الانتحار

ما هو التشخيص الخاص بك؟

- مرض روماتويد
- فايبروميالجيا

المدة منذ ظهور الأعراض لأول مرة؟

الحالة الاجتماعية

العمل: نعم/لا

Appendix C – A Brief Version of the Big Five Personality Inventory (BFI-10)

التعليمات: ازاي الجمل ده بتعبر عن شخصيتك

(اختار الرقم المناسب: 1 تعني "معارض بشدة"، 2 تعني "معارض"، 3 تعني "محايد"، 4 تعني "موافق"، 5 تعني "موافق بشدة")

موافق بشدة	موافق	محايد	معارض	معارض بشدة	أرى نفسي كشخص يتسم بـ التحفظ
(5)	(4)	(3)	(2)	(1)	بتق في الآخر بشكل عام
(5)	(4)	(3)	(2)	(1)	أميل أن أبقى كسلان
(5)	(4)	(3)	(2)	(1)	مرتاح وبتعامل كويس مع الضغط
(5)	(4)	(3)	(2)	(1)	عندي اهتمامات فنية قليلة
(5)	(4)	(3)	(2)	(1)	بحب الخروج واجتماعي
(5)	(4)	(3)	(2)	(1)	أميل أن أوجد الأخطاء لدى الآخرين
(5)	(4)	(3)	(2)	(1)	أعمل شغلي بدقة
(5)	(4)	(3)	(2)	(1)	بتعصب بسهولة
(5)	(4)	(3)	(2)	(1)	عندي خيال نشط

Appendix D – Pain Coping Inventory (PCI)

مقياس التعامل مع الألم

الجنس: ذكر/ أنثى

تاريخ الميلاد:

المؤهل التعليمي:

هل استعملت أدوية للألم قبل كده: نعم/ لا

التعليمات:

إن الأشخاص الذين يعانون من الألم يطوروا طرق متعددة للتعامل مع هذا الألم، فستجد في الصفحات التالية عدد من العبارات عما تفعله أو تفكر فيه عندما تكون في هذا الألم.

سنطلب منك أن تشير إلى عدد المرات التي كنت تتصرف أو تفكر فيها كما هو موضح، فستفعل ذلك من خلال أن تضع دائرة على واحدة من الإجابات المحتملة خلف العبارة.

وستجد في الأسفل مثال للطريقة التي يمكنك أن تستجيب بها على العبارات.

مثال:

لوانت أحياناً بتستحمي عندما تكون في حالة ألم، هتعمل دايرة على رقم 2:

باخذ حمام أو يستحمي	نادراً	قليلاً	كثيراً	غالباً
	1	2	3	4

خد وقتك وأنت بتجاوب على كل عبارة، مفيش إجابات صح أو غلط: لكن رأيك وبس هو المهم، ومش كل العبارات هتنطبق عليك، فنرجو إكمال المقياس التالي.

	نادراً	قليلاً	كثيراً	غالباً
1. أترك نشاطاتي.	1	2	3	4
2. اواصل نشاطاتي، ولكن بمجهود أقل	1	2	3	4
3. اواصل نشاطاتي، ولكن ببطء أكثر	1	2	3	4
4. اواصل نشاطاتي، ولكن بدقة أقل	1	2	3	4
5. بلزم نفسي على الأنشطة البسيطة	1	2	3	4
6. باخذ بالي على عدم إجهاد نفسي جسمانياً	1	2	3	4

- 4 3 2 1 باخذ راحة بالجلوس أو أني امدد جسمي 7.
- 4 3 2 1 باخذ وضع جسم مريح 8.
- 4 3 2 1 باخذ حمام أو دش 9.
- 4 3 2 1 باخذ بالي من أني ما تضايقتش 10.
- 4 3 2 1 بختلي بنفسي في بيئة مريحة 11.
- 4 3 2 1 باخذ بالي إني ما تعبتش نفسي بالأصوات المؤذية (الدوشة) 12.
- 4 3 2 1 باخذ بالي إني ماتعبتش نفسي بسبب الضوء (مثال: عن طريق لبس نظارات الشمس أو قفل الستائر) 13.
- 4 3 2 1 باخذ بالي من اللي يأكله أو أشربه 14.
- 4 3 2 1 بدعي بأن الألم ليس موجود حالياً 15.
- 4 3 2 1 بدعي بأن الألم لايشغل جسمي 16.
- 4 3 2 1 بركز على الألم طول الوقت 17.
- 4 3 2 1 بتخيل إن الألم أقل وجعاً من الحقيقة 18.
- 4 3 2 1 بفكر في أشياء أو أحداث مفرحة 19.
- 4 3 2 1 بشتت نفسي بعمل نشاط جسدي (مثال: مشي أو ركوب عجلة أو العوم) 20.
- 4 3 2 1 بشتت نفسي بالقراءة أو سماع الموسيقى أو مشاهدة برنامج تليفزيوني أو أي شئ مشابه 21.
- 4 3 2 1 بعمل الحاجات اللي بلاقيها مفرحة 22.
- 4 3 2 1 بتحكم في مثيرات جسمانية أخرى (مثال: تني قبضة يدي بإحكام أو قرص نفسي أو ضغط أو فرك مكان الألم) 23.
- 4 3 2 1 بفكر في كل الأشياء التي لم أفعلها بسبب أني في حالة ألم 24.
- 4 3 2 1 أبدأ في القلق 25.
- 4 3 2 1 اتساءل عن سبب الألم 26.
- 4 3 2 1 أفكر في أن الألم سيزداد سوءاً 27.

- | | | | | | |
|---|---|---|---|--|-----|
| 4 | 3 | 2 | 1 | بفكر فى اللحظات التى لم أكن فيها فى حالة ألم | 28. |
| 4 | 3 | 2 | 1 | أفكر بأن سأصاب بالجنون من الألم | 29. |
| 4 | 3 | 2 | 1 | انتكر صعوبات الناس الآخرين | 30. |
| 4 | 3 | 2 | 1 | اعتقد أن الآخرين لا يفهمون معنى أن يكونوا فى مثل هذا الألم | 31. |
| 4 | 3 | 2 | 1 | أفصل نفسى عن الآخرين | 32. |
| 4 | 3 | 2 | 1 | عندما أكون فى الخارج أحاول الرجوع للبيت فى أقرب وقت ممكن | 33. |
| 4 | 3 | 2 | 1 | أصلي أو أدعو الله أو أقوم بعمل شيء روحاني | 34. |
| 4 | 3 | 2 | 1 | أ- لدى طريقتى الخاصة فى تخفيف الألم أو جعلها أكثر احتمالية | 35. |

ب- بأى طريقة

من فضلك تأكد من أنك وضعت علامة على جميع العبارات

شكراً لوقتكم

قائمة هاملتون لأعراض مرض الاكتئاب

خلال الأسبوع الماضي

1 المزاج الاكتئابي: الابتئاس والغم والتشاؤم بشأن المستقبل، مشاعر الحزن، الرغبة في البكاء

0. لا يوجد
1. الحزن
2. البكاء من حين لآخر
3. البكاء بشكل مستمر
4. أعراض حزن شديد

2 تأنيب الضمير أو الشعور بالذنب

0. لا يوجد
1. لوم النفس والشعور بأنه خيب ظن الآخرين فيه
2. أفكار بشأن أنه مذنب وخاطئ
3. مرضه الحالي عقاب نزل به، ضلالات بشأن ارتكابه آثاماً مع الإحساس بالذنب
4. هلاوس بشأن الإحساس بالذنب

3 الانتحار

0. لا يوجد
1. يشعر بأن الحياة لا تستحق العيش
2. يتمنى الموت
3. أفكار بشأن الانتحار
4. محاولات انتحار

4 العمل واهتمامات الحياة

0. لا يوجد صعوبات
1. مشاعر بالعجز وعدم القدرة وفتور الهمة، غير حاسم ولا يستطيع اتخاذ قرار
2. فقدان الاهتمام بأي هوايات، نقص الأنشطة الاجتماعية
3. نقص الانتاجية
4. عدم القدرة على العمل

5 التكاسل والتناقل: بطء التفكير والكلام والنشاط، اللامبالاة والذهول

0. لا يوجد
1. بطء خفيف خلال المقابلة
2. تناقل وتكاسل واضح خلال المقابلة
3. صعوبة إجراء المقابلة
4. الذهول الكامل

6 القلق النفسي

0. لا يوجد
1. التوتر وسهولة الاستئثار
2. الانشغال والقلق بالأمر التافهه
3. التوجع وتوقع الشر
4. المخاوف

7 القلق الجسمي: أعراض معدية معوية، أرياح وعسر هضم، قلبية: خفقان وصداع، تنفسية

0. لا يوجد
1. بسيطة
2. متوسطة
3. شديدة
4. معيقة

8 توهم المرض

0. لا يوجد
1. الانشغال الزائد بالجسم
2. الانشغال بالصحة
3. سلوك متشكك
4. ضلالات بشأن الإصابة بالأمراض

9 الأرق في بداية الليل (صعوبة في الدخول في النوم)

0. لا يوجد
1. أحياناً
2. بشكل متكرر

10 الأرق في منتصف الليل (نوم متقطع)

0. لا يوجد
1. أحياناً
2. بشكل متكرر

11 الأرق في آخر الليل (الاستيقاظ أبكر من المعتاد، وعدم القدرة على النوم مجدداً)

0. لا يوجد

1. أحياناً
2. بشكل متكرر

12 البلبلة والارتجاج: عدم الاستقرار (فرك الأيدي والتمشي جيئةً وذهاباً)

0. لا يوجد
1. أحياناً
2. بشكل متكرر عشان عايزة ارتاح..عشان اريحها

13 أعراض جسدية: معدية معوية، فقدان الشهية، الإحساس بثقل في البطن، الإمساك

0. لا يوجد
1. بسيطة
2. شديدة

14 أعراض جسدية عامة: ثقل في الأطراف أو الظهر أو الرأس، آلام غير محددة في الظهر، فقدان الحيوية وسهولة التعب

0. لا يوجد
1. بسيطة
2. شديدة

15 أعراض جنسية: فقدان الرغبة الجنسية، اضطرابات الطمث

0. لا يوجد
1. بسيطة
2. شديدة

16 الاستبصار

0. لم يفقد استبصاره
1. فاقد للاستبصار جزئياً
2. فاقد للاستبصار

17 نقص الوزن

0. لا يوجد
1. قليل
2. واضح أو شديد

2. Classification of chronic pain

Chronic pain was defined as persistent or recurrent pain lasting longer than 3 months. This definition according to pain duration has the advantage that it is clear and operationalized.

Optional specifiers for each diagnosis record evidence of psychosocial factors and the severity of the pain. Pain severity can be graded based on pain intensity, pain-related distress, and functional impairment.

2.1. Chronic primary pain

Chronic primary pain is pain in 1 or more anatomic regions that persists or recurs for longer than 3 months and is associated with significant emotional distress or significant functional disability (interference with activities of daily life and participation in social roles) and that cannot be better explained by another chronic pain condition. This is a new phenomenological definition, created because the etiology is unknown for many forms of chronic pain. Common conditions such as, eg, back pain that is neither identified as musculoskeletal or neuropathic pain, chronic widespread pain, fibromyalgia, and irritable bowel syndrome will be found in this section and biological findings contributing to the pain problem may or may not be present. The term “primary pain” was chosen in close liaison with the ICD-11 revision committee, who felt this was the most widely acceptable term, in particular, from a non-specialist perspective.