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The Impact of Emotional Intelligence on Health and Wellbeing

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1. Introduction

The purpose of this chapter is to examine the impact of emotional intelligence on health and wellbeing. Following a brief introduction to emotional intelligence and the way this construct is conceptualised and measured, the author summarises a number of studies that shed light on the relationship between emotional intelligence, health and wellbeing. This process narrows the focus on what are thought to be the key predictors of health and wellbeing. Potential limitations of the studies reviewed are discussed, recommendations for future research are made, and implications for applying the findings to enhance health and wellbeing are pondered. The author stresses the importance of their application in parenting, education and healthcare in particular.

2. A brief introduction to emotional intelligence

Emotional intelligence has become a major topic of interest in scientific circles as well as in the lay public since the publication of a book by the same name in 1995 [1]. Despite the heightened level of interest in this 'new idea' since the publication of Daniel Goleman's bestseller, scholars have been studying various aspects of this construct for much of the 20th century; and the historical roots of emotional and social intelligence can be traced back to the 19th century [2]. At this point of the discussion, it is important to draw the reader's attention to the fact that a variety of different terms have been used to describe emotional intelligence over the years; and the various terms that have been used to describe it are italicised below to provide the reader with a sense of how these terms have changed over time.

The first known work in this scholarly field was published by Charles Darwin as early as 1872 and focused on the importance of *emotional expression* for survival and adaptation [2].

Publications began appearing in the 20th century with the work of Edward Thorndike on *social intelligence* in 1920 [3]. Many of these early studies focused on describing, defining and attempting to assess socially competent behaviour [3-7]. Edgar Doll published the first instrument designed to measure *socially intelligent behaviour* in young children [6]. Possibly influenced by Thorndike and Doll, David Wechsler included two subscales ("Comprehension" and "Picture Arrangement") in his well-known test of cognitive intelligence that appear to have been designed to measure social intelligence [8]. A year after the first publication of this test in 1939, Wechsler described the influence of *non-intellective*

factors on intelligent behaviour which was yet another reference to this construct [9]. In the first of a number of publications following this early description moreover, he argued that our models of human intelligence would not be complete until we can adequately describe these factors [10].

Scholars began to shift their attention from describing and assessing social intelligence to understanding the purpose of interpersonal behaviour and the role it plays in effective adaptability [11], which was essentially how Darwin described this behaviour with respect to survival and adaptation. This line of research helped define human effectiveness from the social perspective as well as strengthened one very important aspect of Wechsler's definition of general intelligence: "The capacity of the individual to act purposefully" [12, p. 7]. Additionally, this helped position social intelligence as part of general intelligence.

Scholarly activity in the area of social intelligence continued uninterrupted from the early 1920s to the present and included scientific studies conducted by many prominent psychologists in the field [3, 4, 10, 13-16]. The early definitions of social intelligence influenced the way *emotional intelligence* was later conceptualised. Contemporary theorists like Peter Salovey and John Mayer originally viewed emotional intelligence as part of social intelligence [17, p. 189], which suggests that both concepts are related and may, in fact, represent interrelated components of the same construct.

In the late 1940s, scientific inquiry began to centre around *alexithymia* [18, 19], which is the essence of emotional intelligence at the pathological end of the continuum in that it focuses on the ability, or rather the inability, to recognise, understand and describe emotions [20]. Based on a recent computerised search, it is interesting to note that more than 1,000 articles, chapters and books have been published that are related to alexithymia and how it affects physical and psychological health; and the vast majority of these publications appeared long before the publication of Daniel Goleman's 1995 bestseller popularising the topic [1].

Two new directions that paralleled and possibly evolved from alexithymia were *psychological mindedness* [21] and *emotional awareness* [22].

From the 1970s, many mental healthcare practitioners began evaluating the *psychological mindedness* of patients to assess their suitability for psychotherapy and ability to benefit from it.

Research exploring the neural circuitry that governs emotional awareness [23], as well as additional emotional and social aspects of this concept [23-31], has begun to provide tangible evidence of the anatomical foundations of this construct which some have prematurely and inaccurately described as 'an intangible myth' [32-34].

The literature reveals various attempts to combine the emotional and social components of this wider construct. For example, Howard Gardner [35] explains that his conceptualisation of *personal intelligences* is based on *intrapersonal intelligence* and *interpersonal intelligence*. Additionally, Carolyn Saarni [36] describes *emotional competence* as including eight interrelated emotional and social skills. And Reuven Bar-On has shown that *emotional-social intelligence* is composed of a number of intrapersonal and interpersonal competencies and skills that combine to determine effective human behaviour [37-39].

Based on the above, it is more accurate to refer to this construct as "emotional-social intelligence" rather than "emotional intelligence" or "social intelligence" as Bar-On has

suggested for a number of years [39]. Throughout this chapter, this wider construct is interchangeably referred to as “emotional-social intelligence” and, at times, “emotional and social intelligence” or simply “emotional intelligence” (EI).

Since the time of Thorndike [3], a number of different conceptualisations of emotional intelligence have appeared creating an interesting mixture of confusion, controversy and opportunity regarding how best to define and measure this construct. In an effort to help clarify matters, the *Encyclopedia of Applied Psychology* [40] suggested that there are three basic conceptual and psychometric models: (a) the Salovey-Mayer model [41] which defines this construct as the ability to perceive, understand, manage and use emotions to facilitate thinking, measured by an ability-based measure [42]; (b) the Goleman model [43] which views this construct as a wide range of competencies and skills that drive human performance, measured by multi-rater assessment [44]; and (c) the Bar-On model [37-39] which describes an array of interrelated emotional and social competencies and skills that impact intelligent behaviour, measured by self-report [38, 45], multi-rater assessment and structured interview [46-48].

For a detailed historical overview of subjective wellbeing and its relationship with emotional intelligence, the reader is referred to Bar-On’s seminal article on the topic [49].

3. The conceptual and psychometric model of emotional intelligence used in this chapter

From Darwin to the present, most conceptual and psychometric models of emotional-social intelligence have included one or more of the following factorial components: (a) the ability to recognise, understand, express and utilise emotions and feelings; (b) the ability to understand how others feel and use this information to relate with them; (c) the ability to manage and control emotions so they work for us and not against us; (d) the ability to use input from emotions and feelings to manage change, adapt and solve problems of a personal and interpersonal nature; and (e) the ability to be optimistic, positive and self-motivated to navigate through life and cope with challenges as they arise. The Bar-On conceptual and psychometric model of emotional intelligence captures all these components and is described below, in light of the fact that the present chapter relies primarily on this particular model to study and understand the relationship between this construct, health and wellbeing.

According to the Bar-On model, *emotional-social intelligence is an array of interrelated emotional and social competencies, skills and behaviours that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands, problems and pressure* [38, 39, 50]. The emotional and social competencies, skills and behaviours referred to in this conceptualisation include the 15 factors that are described in Appendix A.

The Emotional Quotient Inventory (EQ-i) was developed, over a period of 17 years, to assess the 15 factorial components of the Bar-On model [37-39, 50, 51]. The EQ-i is a self-report measure of emotionally and socially intelligent behaviour that provides an estimate of one’s emotional-social intelligence. A detailed description of how this instrument was developed, normed and validated, together with its psychometric properties, are found elsewhere in the

literature [e.g., 37-39, 50-55]. In brief, the EQ-i comprises 133 items in the form of short sentences and employs a 5-point response scale. A list of the inventory's items is found in the instrument's technical manual [38]. The EQ-i is suitable for individuals 17 years of age and older and takes approximately 20 to 30 minutes to complete online. The individual's responses render a Total EQ score and scores on the following 15 scales described in Appendix A: Self Regard, Emotional Self-Awareness, Assertiveness, Independence, Self-Actualization, Empathy, Social Responsibility, Interpersonal Relationship, Stress Tolerance, Impulse Control, Reality Testing, Flexibility, Problem Solving, Optimism, and Happiness. Average to above average scores on the EQ-i indicate that the respondent is effective in emotional and social functioning. The higher the scores, the more positive the prediction for effective functioning in meeting daily demands and challenges. On the other hand, low scores suggest an inability to be effective and the possible existence of emotional, social and/or behavioural problems. The EQ-i has a built-in correction factor that automatically adjusts the scale scores based on scores obtained from the instrument's validity indices; and this is a very important feature for self-report measures in that it reduces the potentially distorting effects of response bias thereby increasing the accuracy of the results.

The EQ-i was originally constructed as an experimental instrument designed to examine the conceptual model of *emotional and social functioning* that the author began developing in the early 1980s during his doctoral studies [37]. At that time, he hypothesised that effective emotional and social functioning should eventually lead to a sense of psychological wellbeing. It was reasoned that the results gained from applying such an instrument on large and diverse population samples would reveal more about emotionally and socially intelligent behaviour and about the underlying construct of emotional-social intelligence. Based on findings obtained from applying the EQ-i in a wide range of studies from the early 1980s to the present day, the author has moulded his conceptualisation of this construct over time. In 2011, a mildly revised version of the EQ-i -- referred to as the "EQ-i 2.0" -- was renormed [www.mhs.com]. Although some of the items were reworded and others added, the 15 factorial structure of the Bar-On model was confirmed, for the most part, in spite of the cosmetic changes that were introduced.

4. Examining the relationship between emotional intelligence, health and wellbeing

The remainder of this chapter is devoted entirely to examining and summarising the nature of the relationship between emotional intelligence, health and wellbeing. In order to do this, the following three areas need to be explored empirically:

- The nature of the relationship between emotional intelligence and physical health
- The nature of relationship between emotional intelligence and subjective wellbeing
- The nature of the relationship between health and subjective wellbeing

5. The nature of the relationship between emotional intelligence and physical health

To explore and understand the nature of the relationship between emotional intelligence (EI) and physical health, the findings of five studies are presented below. These findings address the question of whether emotionally intelligent people are healthier than those who

are less emotionally intelligent, and *vice versa*. In presenting these studies, the specific EI factors involved will be summarised and discussed at the end of this section.

The 1st study. The first study reviewed here was based on the North American normative sample upon which the EQ-i was originally piloted and standardised for use in the United States and Canada [45]. This study was first described in 2004 [51] and has been cited by others in more than 90 publications since then.

When the 152-item beta version on the EQ-i was piloted in 1996 and 1997, the following item was eventually excluded from the final 133-item version of this instrument because it was thought to be associated more with self-perceived health (SPH) than with emotional intelligence (EI): "I feel good about my health in general." In spite of its limitations as an EI item, it was useful in providing a self-perceived evaluation of the respondents' physical health to help examine the EQ-i's validity as it relates to predicting health. It is important to note that a growing body of research findings indicate that self-perceived health is significantly correlated with clinically assessed health [56-61] which justified its use here as a valid measure of health.

Within the EQ-i's normative sample of 3,831 adults [38], 1,867 males and 1,945 females with an average age of 34.2 years responded to the above-mentioned SPH item. As the first step in studying the relationship between emotional intelligence and health, the degree of difference in SPH was examined between respondents with lower and higher levels of EI (i.e., those with Total EQ scores less than 1 SD below the mean and those with scores greater than 1 SD above the mean respectively). Because of the multivariate nature of the data and the methods used to collect that data, a one-way ANOVA was applied to examine the differences in their SPH; and the results are presented in Table 1 below.

| | Low EI (n=528) | High EI (n=547) | F score | p level |
|-----|-------------------|--------------------|---------|---------|
| SPH | 3.49 ± 1.05 | 4.64 ± 0.67 | 463.58 | <.001 |

Table 1. Differences in self-perceived physical health (SPH) between individuals with lower and higher levels of emotional intelligence (EI) based on a one-way ANOVA.

The results in Table 1 indicate that people who are more emotionally intelligent feel healthier than those who are less emotionally intelligent. To confirm these findings, it was important to evaluate whether individuals who perceive themselves as healthy are more emotionally intelligent than those who feel they are less healthy. Using the above-mentioned normative sample [38], the degree of difference in EI was examined between those respondents with lower and higher levels of SPH (i.e., those with SPH scores less than 1 SD below the mean and those with SPH scores greater than 1 SD above the mean respectively). A one-way ANOVA was once again applied to examine the differences in EI, and the results appear in Table 2.

| | Low SPH (n=202) | High SPH (n=1,304) | F score | p level |
|------------|--------------------|-----------------------|---------|---------|
| Overall EI | 416.4 ± 57.6 | 487.5 ± 45.3 | 398.25 | <.001 |

Table 2. Differences in overall emotional intelligence (EI), based on EQ-i raw scores for the Total EQ scale, between individuals with lower and higher levels of self-perceived health (SPH).

The results in Table 2 suggest that individuals who are healthier are more emotionally intelligent than those who are less healthy. As such, this confirms the results in Table 1.

To better understand the overall impact of emotional intelligence (EI) on physical health as well as the specific constellation of EI factors that predict and differentiate between lower and higher levels of self-perceived health (SPH), a Multiple Regression Analysis was applied to the EQ-i normative data to examine the ability of the instrument's 15 subscales to predict SPH which was assessed with the previously mentioned item ("I feel good about my health in general"). This resulted in a Regression R of .49 demonstrating a moderate to high correlation between EI and SPH; and based on an R² of .24, nearly 25% of self-perceived physical health appears to be influenced by one's level of emotional intelligence. The strongest EI predictors of physical health that emerge from the regression model appear in Table 3 in the order of their predictive ability.

| EQ-i subscales | β score | <i>t</i> value | <i>p</i> level |
|--------------------|---------------|----------------|----------------|
| Self Regard | .403 | 15.52 | <.001 |
| Stress Tolerance | .097 | 4.07 | <.001 |
| Self-Actualization | .054 | 2.24 | .025 |
| Impulse Control | .039 | 2.09 | .037 |

Table 3. The significant EI predictors of self-perceived health generated by Multiple Regression Analysis (n=3,812).

The results in Table 3 suggest that self regard (one's ability to understand and accept oneself) is the strongest predictor of health. To understand the specific EI factors measured by the EQ-i subscales appearing in Table 3, and elsewhere throughout this chapter, the reader is referred to Appendix A which describes what each of the subscales measure.

In order to more closely study those EI factors that are capable of distinguishing between less healthy and healthier individuals, a one-way ANOVA was applied to the EQ-i normative data. Raw scores for the instrument's 15 subscales were entered as the dependent variables, and low and high SPH levels (1 SD below and above the mean value respectively) were entered as the independent (grouping) variable. The statistically significant results are revealed in Table 4 in the order of their ability to distinguish between lower and higher levels of self-perceived health.

| EI factors assessed by EQ-i subscales | Low SPH (n=202) | High SPH (n=1,304) | <i>F</i> score | <i>p</i> level |
|---------------------------------------|-----------------|--------------------|----------------|----------------|
| Self Regard | 28.8 ± 7.2 | 37.0 ± 5.6 | 412.13 | <.001 |
| Happiness | 32.7 ± 6.3 | 38.3 ± 4.7 | 266.32 | <.001 |
| Optimism | 29.0 ± 5.6 | 33.7 ± 4.1 | 231.48 | <.001 |
| Stress Tolerance | 29.1 ± 6.0 | 34.5 ± 5.3 | 204.38 | <.001 |
| Self-Actualization | 33.8 ± 6.3 | 38.4 ± 4.7 | 185.15 | <.001 |

Table 4. The ability of EI factors to distinguish between lower and higher levels of self-perceived health (SPH) based on a one-way ANOVA.

By observing the results of this study, that are presented in Tables 3 and 4, it can be seen that strongest EI predictors of physical health are self regard (in particular), self-actualisation, stress tolerance, optimism and happiness. Based on the way these EI factors are defined in Appendix A, the findings suggest that individuals who have good self-awareness and understand their weaknesses as well as their strengths, pursue activities that actualise their potential, manage emotions well and who are typically optimistic, positive and content are healthier individuals.

The 2nd study. The second study re-examined here more directly and objectively examined the impact of emotional intelligence on physical health. This study was based on a sub-sample of the Israeli normative sample, upon which the EQ-i was standardized for use in that country. It was first described in 2006 [50] and has been cited in more than 240 other publications since then. This particular sample included 941 male conscripts into the Israeli Defence Forces (IDF), with an average age of 18 years at the time this study was conducted in 2001. Upon mandatory conscription into the IDF, each conscript is thoroughly examined by medical staff at the Office of Mobilisation and receives a 5-digit medical profile or profiles based on their existing state of health. The first 4 digits of this profile reveal the specific nature of their medical condition/s, while the 5th digit indicates the severity of the condition/s. Severity ranges from 1 to 7. Typically a severity of 1 and 2 does not restrict the nature of the conscripts' 3-year tour of mandatory military service. The higher the severity level from 3 to 5, however, the more they are limited regarding where they can serve and what they can do. While level 7 automatically rejects conscripts from military service because of the specific nature and severity of their medical condition, level 6 requires that they be re-evaluated after a period of one year at which time they are either rejected from military service (i.e., 6 is raised to 7) or they begin to serve with a lower level of severity (i.e., level 6 is reduced to anywhere from 1 to 5 depending upon their medical condition when they are re-evaluated).

The above-mentioned system of receiving well-documented medical profiles represents an objective and accurate assessment of these individuals' state of health. At the time of their initial medical evaluation at Office of Mobilisation, 941 IDF conscripts were randomly identified with medical profiles ranging from 1 to 5. This group completed the EQ-i at the time of their initial medical examinations. Conscripts with psychiatric profiles were excluded from this sample, in order to limit the focus of the study to physical health. As was originally described [50], Multiple Regression Analysis was applied and rendered an overall correlation of .37 indicating a low moderate yet significant relationship between emotional intelligence and physical health for the sample studied. Based on re-examining the specific impact of emotional intelligence on three different grouped levels of severity (587 with level 1, 188 with level 2 and 166 with levels 3 through 5), four EI factors emerged as the strongest predictors of physical health; and they are listed in Table 5 in the order of their predictive ability.

| EQ-i subscales | β score | <i>t</i> value | <i>p</i> level |
|--------------------|---------------|----------------|----------------|
| Self-Actualization | .154 | 3.26 | .001 |
| Stress Tolerance | .127 | 2.16 | .031 |
| Optimism | .127 | 2.14 | .032 |
| Problem Solving | .104 | 2.22 | .027 |

Table 5. The statistically significant EI predictors of clinically assessed health in IDF conscripts (n=941) based on Multiple Regression Analysis.

In addition to examining the impact of EI on health by conducting a regression analysis of the data, an analysis of variance was also applied to examine the ability of EI factors to differentiate between lower and higher levels of clinically-assessed health in this sample (i.e., 587 individuals with a severity level of 1 and 354 with severity levels from 2 to 5). A one-way ANOVA was used to examine the ability of EI to differentiate these two different levels of health, and the results are described below. The 5 EI factors, assessed by the EQ-i, which were able to significantly differentiate between lower and higher levels of physical health appear in Table 6 in the order of their ability to differentiate between less healthy and healthier individuals.

| EQ-i Scales (EI Factors) | Less Healthy (n=354) | More Healthy (n=587) | F score | p level |
|-----------------------------|-------------------------|-------------------------|---------|---------|
| Flexibility | 27.8 + 5.0 | 29.1 + 4.4 | 16.91 | <.001 |
| Stress Tolerance | 34.0 + 5.9 | 35.3 + 5.2 | 13.02 | <.001 |
| Optimism | 31.4 + 4.6 | 32.4 + 4.4 | 9.81 | .002 |
| Interpersonal Relationship | 44.3 + 6.0 | 45.3 + 5.7 | 5.87 | .016 |
| Happiness | 38.6 + 5.1 | 39.3 + 4.5 | 4.13 | .042 |

Table 6. Differences in emotional intelligence, based on EQ-i raw scores, between individuals with lower and higher levels of self-perceived health.

The results from the second study appearing in Tables 5 and 6 indicate that one's ability (a) to manage emotions and cope with stress, (b) be flexible and adaptable, (c) solve personal and interpersonal problems, (d) achieve personal goals designed to actualise their potential as well as the ability to be (e) optimistic and (f) content with themselves, others and life in general significantly differentiate between less healthy and healthier individuals.

The 3rd study. The third study presented in this section directly and objectively examines the impact of emotional intelligence on health in a clinical sample [62]. This study was conducted in the Department of Dermatology and Skin Science at the University of British Columbia in Vancouver and examined the relationship between emotional intelligence (EI) and alopecia areata (AA), which is an autoimmune disease characterised by hair loss. In this study, which was recently submitted for review, the EI of 42 AA patients were compared with a non-clinical sample of 77 individuals. The non-clinical control group was created by randomly selecting the EQ-i scores of 77 individuals from the North American normative sample upon which this psychometric instrument was originally normed in North America [38]. In the experimental group, each participant completed the EQ-i. The primary aim was to investigate EI differences between AA patients and the non-clinical control group. The clinical sample included 13 males and 29 females who were randomly selected from the Department of Dermatology and Skin Science; and the non-clinical control group included a matched proportion of males and females in the same age range of 19 to 68 with an average age of 40.7 years. A one-way ANOVA was employed to determine the extent of differences in EI between AA patients and the non-clinical control group. The results are shown in Table 7 below.

It can be seen, from the results in Table 7, that the AA patients experience more difficulty in managing their emotions and coping with stress (Stress Tolerance), are more pessimistic (Optimism) and unhappy (Happiness), have poor self-awareness and self-acceptance (Self

Regard) and are less motivated to pursue their interests and actualise personal goals (Self-Actualization) when compared with the non-clinical sample. Their ability to manage emotions and cope with stress is by far the most severe EI deficiency when compared with healthy individuals.

| EQ-i scales | AA patient scores (n=42) | Non-clinical scores (n=77) | F score | p level |
|--------------------|--------------------------|----------------------------|---------|---------|
| Stress Tolerance | 91.4 ± 21.8 | 99.5 ± 9.1 | 8.11 | .005 |
| Happiness | 95.5 ± 18.7 | 101.2 ± 8.4 | 5.33 | .023 |
| Optimism | 95.4 ± 20.5 | 101.4 ± 8.7 | 4.96 | .028 |
| Self Regard | 95.5 ± 18.6 | 100.9 ± 9.4 | 4.40 | .038 |
| Self-Actualization | 96.6 ± 17.0 | 101.5 ± 9.0 | 4.29 | .041 |

Table 7. A one-way ANOVA examination of differences in emotional intelligence, assessed with standardized EQ-i scores, between alopecia areata (AA) patients and a non-clinical sample.

The 4th study. The fourth study re-evaluated here examines the impact of emotional intelligence (EI) on health in a sample of coronary heart disease patients who suffered myocardial infarction (MI). This study was conducted by a graduate student in South Africa in 1996 [63], and the source in which it was described [38] was cited 380 times in other publications. The graduate student administered the EQ-i to 58 MI patients within 10 days of being hospitalised after suffering a heart attack; and their scores were compared with the EQ-i scores of 58 individuals who were randomly selected from the normative sample upon which this instrument was normed in South Africa. She applied a *t*-test to examine the difference in EI between the two groups, and the results are listed in Table 8 below.

| EQ-i scales | MI patient Scores | Non-clinical Scores | t value | p level |
|--------------------|-------------------|---------------------|---------|---------|
| Stress Tolerance | 84.0 | 99.8 | 8.70 | <.001 |
| Flexibility | 85.3 | 100.6 | 8.08 | <.001 |
| Self-Actualization | 84.7 | 98.2 | 7.68 | <.001 |
| Happiness | 86.1 | 98.6 | 7.46 | <.001 |
| Problem Solving | 90.3 | 100.9 | 5.04 | <.001 |

Table 8. Significant differences in emotional intelligence, assessed with standardized EQ-i scores, between the MI patients (n=58) and a non-clinical sample (n=58).

The results in Table 8 indicate that the MI patients exhibited significant deficiencies in their ability to manage emotions (Stress Tolerance), to solve problems of a personal and interpersonal nature (Problem Solving), to change and adapt (Flexibility) and appeared less motivated to pursue their personal goals (Self-Actualization) and less content with their lives (Happiness) when compared with the control group.

The 5th study. The fifth study discussed in this section examined differences in emotional intelligence between 35 cancer survivors and a matched non-clinical sample [64]. This study, which was cited in 12 other peer-reviewed publications, was conducted in the Paediatric Oncology Department at Rambam Hospital in Israel. A group of 35 late adolescents and

young adults, who were considered to be “cancer survivors” (i.e., symptom free for at least five years), were randomly selected from hospital files. The individuals in this group were initially diagnosed with various types of cancer when they were children or young adolescents. In one of their follow-up examinations, they were asked to complete the EQ-i. Their scores were compared with the EQ-i scores of 35 randomly selected individuals from the local normative population sample matched for gender and age. The only EQ-i scale that was able to significantly distinguish the cancer survivors from the non-clinical control group was Optimism as can be seen in Table 9.

| EQ-i scales | CA survivors Scores | Non-clinical Scores | F score | p level |
|-------------|---------------------|---------------------|---------|---------|
| Optimism | 32.3 ± 5.1 | 29.6 ± 3.7 | 6.34 | .014 |

Table 9. Significant differences in emotional intelligence between the adolescent cancer survivors (n=35) and a non-clinical sample (n=35).

As is observed in Table 9, the cancer survivors’ level of optimism is significantly higher than the non-clinical subjects. This is an interesting finding, in light of the fact that optimism is considered a key facilitator of emotionally and socially intelligent behaviour [39]. Additionally, Barbara Fredrickson’s research has demonstrated that positive emotions, such as optimism, joy and contentment, strategically broaden the “thought-action repertoire” that plays an important role in survival [65]. Based on her findings and those of others, such emotions create the desire to contemplate current life situations, to be flexible [66], open and integrate relevant information [67, 68] into new perceptions of the self and world enhancing one’s ability to survive and creatively adapt [69]. This serves to broaden one’s “cognitive organization” for the purpose of integrating a wide range of diverse information [70, p. 87]; and when individuals expand their focus of attention, problem-solving is more flexible, creative and effective than when they are in a negative or neutral mood state [65].

Summary: The results generated by the five studies reviewed in this section indicate that emotional intelligence has a significant impact on health as well as on the ability to cope with and possibly survive life-threatening medical conditions. Table 10 summarises the key findings from these studies that have examined the relationship between emotional intelligence on health.

| EI factors assessed by the EQ-i | Study No. 1 | Study No. 2 | Study No. 3 | Study No. 4 | Study No. 5 |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|
| Self Regard | √ | | √ | | |
| Stress Tolerance | √ | √ | √ | √ | |
| Flexibility | | √ | | √ | |
| Problem Solving | | √ | | √ | |
| Self-Actualization | √ | √ | √ | √ | |
| Optimism | √ | √ | √ | | √ |
| Happiness | √ | √ | √ | √ | |

Table 10. The 7 EI factors that appeared most often in Tables 1 through 9 that are significantly associated with physical health.

Table 10 shows that the four most important EI competencies, skills and behaviours that impact health appear to be (1) the ability to adequately manage emotions and cope with stress, (2) the ability to set personal goals and the drive to achieve them in order to actualise one's potential, (3) optimism as well as (4) the ability to feel content with oneself, others and life in general. Additionally, but to a lesser extent, (5) being aware of one's limitations and weaknesses as well as one's strengths, (6) flexibility and adaptability as well as (7) the ability to solve personal and interpersonal problems also appear to be important in attaining and maintaining good physical health.

6. The nature of the relationship between emotional intelligence and subjective wellbeing

Does emotional intelligence impact overall subjective wellbeing (SWB)? To address this question, it is helpful to re-examine an earlier study that empirically studied this relationship in 2005 [49] which was cited in 20 other publications. In that study, wellbeing was defined as a subjective state that emerges from a feeling of satisfaction with (a) one's physical health and oneself in general, (b) one's close interpersonal relationships and (c) one's occupation and financial situation. This comprehensive definition of subjective wellbeing comprises the key reoccurring themes used to describe this construct in the literature. Ryff [71], Helliwell and Putnam [72] consider all three of these particular aspects of SWB to be the essential features of this construct, while Oswald [73], Clark [74] and others have emphasised the occupational and financial component. It is important to note that the above three-factor conceptualisation also reflects very closely the most current description of this construct on the web (www.merriam-webster.com/dictionary/well-being -- September 1, 2011), which defines subjective wellbeing as the state of being happy, healthy and prosperous which is similar to the old adage of being "healthy, wealthy and wise."

In the 2005 study [49], a measure of SWB was used which captures the above definition of this construct. This measure was based on the item and factor analysis of 16 items that were originally designed to tap the physical, personal, interpersonal, occupational and financial aspects of subjective wellbeing in the 152-item beta version of the EQ-i [38]. In the initial stage, item analysis eliminated the 7 weakest items. Then, a varimax rotation of the 9 remaining items was applied and rendered three clearly identifiable factors. Three interpersonal satisfaction items loaded on the first factor (33.8% of the variance). One occupational and two financial satisfaction items loaded on the second factor (14.1% of the variance). And one personal and two physical health satisfaction items loaded on the third factor (11.2% of the variance). The specific items that load on these three factors appear in Appendix B. These nine items were excluded from the final version of the EQ-i together with additional items, which were originally designed to tap various aspects of quality of life and overall wellbeing as was previously mentioned.

Because of the limited number of items (3) in each of the final factorial components of this instrument, a 9-item composite scale of overall SWB was created by summing all of the items. The instrument is based on a self-report assessment modality, which remains the method of choice for measuring SWB [75, 76] irrespective of the criticism that is typically levelled against this type of assessment for other purposes. Additionally, Helliwell and Putnam [72] strongly support a near exclusive use of self-reports to measure this construct as do most of the other current researchers in this area. Moreover, a growing body of

research findings demonstrate that responses on self-report measures reflect real differences across individuals corresponding with external reports of observed behaviour [77-79].

Using this 9-item SWB measure, the relationship between emotional intelligence and subjective wellbeing was then examined using Multiple Regression Analysis on the original North American normative sample for the EQ-i ($n=3,385/3,831$). The results indicated that the two constructs are highly correlated ($R=.77 - F=380.41, p<.001$). The three most significant EI predictors of SWB that emerge from the regression model are listed in Table 11.

| EI Competencies assessed by the EQ-i | β score | t value | p level |
|--------------------------------------|---------------|-----------|-----------|
| Self Regard | .402 | 20.13 | <.001 |
| Happiness | .231 | 11.61 | <.001 |
| Self-Actualization | .165 | 9.08 | <.001 |

Table 11. A multiple regression analysis of the impact of EI on general SWB ($n=3,385$), rendering a correlation of .77 and the following 3-factor predictive model.

Table 11 reveals a well defined 3-factor EI model that impacts subjective wellbeing and accounts for 60% of the variance ($R^2=.60$). According to this model and based on the way these EI factors are defined in Appendix A, individuals who (a) understand and accept themselves, (b) strive to achieve personal goals and actualise their potential and who (c) are content with themselves, others and life, in general, typically experience a sense of wellbeing. It can be seen that the three factors in the regression model fairly closely parallel the factorial model of the SWB instrument for the most part.

Examining the contribution of emotional intelligence to wellbeing addresses a reoccurring theme in the literature regarding the need to empirically study those factors that impact SWB and to develop models that predict it [80]. The implications of the above-mentioned findings are that it is indeed possible to create models capable of predicting SWB as some scholars have envisaged [80].

7. The nature of the relationship between health and subjective wellbeing

Is one's level of self-perceived health significantly correlated with subjective wellbeing, and can subjective wellbeing, in turn, impact self-perceived health? To address the first part of this question, it is necessary to examine the degree of correlation between the previously-mentioned indicator of SPH ("I feel good about my health") and the above-mentioned SWB measure. Before doing that, however, the above item that is used as the SPH indicator was removed from 9-item SWB measure (Appendix B); otherwise, its inclusion would artificially increase the degree of correlation between SPH and SWB. Based on the North American sample upon which the EQ-i was originally normed ($n=3,831$), the resulting bivariate correlation that emerged is .56 accounting for 31% of the variance ($R^2=.31$) This is a moderately high correlation suggesting that one's level of self-perceived health does indeed have a significant impact on one's overall sense of subjective wellbeing.

To address the second part of the above question (i.e., whether subjective wellbeing impacts self-perceived health), a Multiple Regression Analysis was applied to examine the extent to

which SWB impacts SPH on the same population sample. The resulting correlation coefficient was once again .56 ($R^2=.31$, $F=343.16$, $p<.001$) as expected, and the predictive regression model that emerged appears in Table 12 below.

| Subjective Wellbeing | β score | t value | p level |
|--|------------------|--------------|--------------|
| I feel good about my physical fitness. | .435 | 30.34 | <.001 |
| Looking at both my good points and bad points, I feel good about myself. | .144 | 9.29 | <.001 |
| I feel good about my family life. | .089 | 5.71 | <.001 |
| I am happy with my intimate relations with others. | .054 | 3.50 | .001 |
| I'm happy with my work. | .043 | 3.04 | .002 |

Table 12. A multiple regression analysis of the impact of SWB on SPH ($n=3,753$), which rendered a correlation of .56 and the following 5-factor predictive model.

The results presented here suggest that 31% of the variance ($R^2=.31$) of self-perceived health is explained by subjective wellbeing. Additionally, the specific findings in Table 12 appear to indicate that satisfaction with (a) one's physical fitness and self-acceptance as well as with (b) one's interpersonal relationships and with (c) work have a strong impact on one's health. Although physical health is typically considered to be a cause rather than an effect of SWB [72], the findings presented here suggest that there most likely is a reciprocal relationship between physical health and subjective SWB [65]. The chain of events are perhaps as follows: (a) EI factors contribute to health and overall SWB, and (b) SWB, in turn, contributes to physical health.

The above findings compare favourably with those previously obtained by Brackett and Mayer [81], who carried out one of the only other studies that directly examine the overall relationship between EI and SWB followed by Bar-On [49]. On a homogeneous sample of 207 university students, they examined the correlation between SWB (evaluated with Carol Ryff's measure of this construct [71]) and EI (assessed with both the MSCEIT [42] and the EQ-i [45]). The results revealed a correlation of .28 rendered by the MSCEIT and .54 rendered by the EQ-i. It is important to point out that Brackett and Mayer [81] did not describe the specific EI predictors of SWB in their article.

8. Discussion

This chapter presented findings from seven studies that empirically demonstrate that emotional intelligence (EI) significantly impacts physical health and overall subjective wellbeing. Those EI factors that have the strongest impact on health and wellbeing are the following:

1. Self regard (the ability to accurately perceive, understand and accept oneself)
2. Self-actualisation (the ability to pursue personal goals and actualise one's potential)
3. Stress tolerance (the ability to effectively and constructively manage emotions)
4. Optimism (the ability to be positive, hopeful and look at the brighter side of life)
5. Happiness (the ability to feel content with oneself, others and life in general)

Based on the way these EI factors are defined by the Bar-On model, it appears that people who (1) are accurately aware of and accept themselves, (2) pursue constructive personal goals, (3) are capable of effectively managing their emotions, (4) are optimistic and (5) content with themselves, their significant others and life in general tend to experience good health and wellbeing. It is interesting to note that stress tolerance and self-actualisation are also two of the most powerful EI contributors to mental health as well [50].

Although physical health was based on both self-report as well as objective medical evaluation in clinical and non-clinical samples, the primary limitation of the studies reviewed in this chapter is that the data were generated by one particular measure of emotional intelligence and one particular measure of wellbeing. These specific models of emotional intelligence and wellbeing, no matter how valid and reliable they might be, cannot logically provide an exhaustive and complete assessment of these constructs. Future studies in this area of scholarly inquiry should, therefore, use a wider variety of psychometric instruments to assess both emotional-social intelligence and subjective wellbeing. Additionally, the relationship between emotional intelligence, health and subjective wellbeing should also be studied on more diverse clinical and non-clinical samples. Not only should the cross-cultural element be taken into consideration in selecting the non-clinical samples in future studies, but the relationship between emotional intelligence, health and wellbeing should be re-examined in a wider variety of clinical samples. In light of the fact that all of the studies presented here were cross-sectional moreover, future studies should also attempt to longitudinally re-examine this relationship in order to better predict the ability to attain and maintain health as well as to survive and recover from life-threatening medical conditions.

The impact of additional (potential) predictors of health and wellbeing should also be empirically explored in future studies. For example, this could include personality factors, resilience and spiritual development. Two large studies, in which the author will be involved, are presently being designed and will shed more light on the psycho-social nature of physical health, recovery from illness and subjective wellbeing. One will look at the emotional, social and spiritual predictors of health as well as the effects of targeted intervention to enhance these specific predictors and, hopefully, health in a non-clinical sample. The other study will examine the impact of emotional intelligence, resilience and spirituality on breast cancer survivorship.

After demonstrating, in the present chapter, that emotional intelligence significantly impacts both physical health and subjective wellbeing, it is logical to ask whether emotionally and socially intelligent behaviour can be enhanced in order to improve health and wellbeing. In responding to this very important question, it is necessary to point out that numerous studies are described in the literature showing that emotionally and socially intelligent behaviour can indeed be enhanced at home [82-84], school [85-90], work [91-100] as well as in the clinical setting [63, 101, 102]. The findings indicate that EI factors are both teachable and learnable, and that these competencies, skills and behaviours, unlike personality traits, can be enhanced by relatively simple didactic methods over a relatively short period of time [103]. Not only do these studies show that such EI-oriented programmes can make a significant difference, they also support the notion that EI measures can effectively be used to monitor and measure progress achieved as a result of these programmes. What also needs to be done in future projects of this nature is to more extensively examine a variety of pre-

and post-intervention behavioural parameters to help evaluate the extent to which positive changes have been made as well as maintained overtime.

Since the mid 1960s, growing numbers of children around the world have been introduced to EI-enriching curricula such as those developed and promoted by Self-Science [85, 88], the Collaborative for Academic, Social, and Emotional Learning [82, 89] and the National School Climate Center [86]. Some of these programmes have targeted not only individual schools but cities [87], entire school districts [104] and even larger geographic areas [105].

Hopefully, the results presented here, together with future findings, will eventually make their way into parenting, education and healthcare. Parents and educators could benefit from these efforts by learning how best to raise and educate children to be more emotionally and socially intelligent, effective and healthy; and based on the findings presented in this chapter, it is reasonable to assume that such efforts in parenting and education will have a positive and, hopefully, lasting effect on overall subjective wellbeing. This could also add an important and valuable component to preventive medicine. Healthcare personnel could eventually benefit from assessing their patients' level of EI, overall wellbeing and other closely-associated predictive factors (e.g., personality traits, resilience and spiritual development). The results of this type of diagnostic screening could indicate the need to refer patients for remedial counselling designed to strengthen specific EI deficiencies needed to help improve physical health and wellbeing.

In closing, it is the hope of this author that research continues to expand in this very important area of scholarly inquiry and that the findings will be applied in order to help improve health and wellbeing for an ever increasing number of people worldwide.

9. Appendices

| | |
|----------------------------|--|
| EQ-i scales | The EI competencies and skills assessed by each scale |
| Self Regard | <i>To accurately perceive, understand and accept oneself.</i> |
| Emotional Self-Awareness | <i>To be aware of and understand one's emotions.</i> |
| Assertiveness | <i>To effectively and constructively express one's emotions and oneself.</i> |
| Independence | <i>To be self-reliant and free of emotional dependency on others.</i> |
| Self-Actualization | <i>To strive to achieve personal goals and actualise one's potential.</i> |
| Empathy | <i>To be aware of and understand how others feel.</i> |
| Social Responsibility | <i>To identify with one's social group and cooperate with others.</i> |
| Interpersonal Relationship | <i>To establish mutually satisfying relationships and relate well with others.</i> |
| Stress Tolerance | <i>To effectively and constructively manage emotions.</i> |
| Impulse Control | <i>To effectively and constructively control emotions.</i> |
| Reality Testing | <i>To objectively validate one's feelings and thinking with external reality.</i> |
| Flexibility | <i>To adapt and adjust one's feelings and thinking to new situations.</i> |
| Problem Solving | <i>To effectively solve problems of a personal and interpersonal nature.</i> |
| Optimism | <i>To be positive, hopeful and look at the brighter side of life.</i> |
| Happiness | <i>To feel content with oneself, others and life in general.</i> |

Appendix A. The EQ-i Scales and What They Assess

| SWB Scale Components | The Items Included in Each SWB Component: |
|-------------------------------|---|
| Physical & Personal SWB: | 1. I feel good about my health in general. 6. I feel good about my physical fitness. |
| | 2. Looking at both my good points and bad points, I feel good about myself. |
| Interpersonal SWB: | 3. I'm happy with the people I live with. 7. I'm happy with my intimate relations with others. 9. I feel good about my family life. |
| Occupational & Financial SWB: | 4. I'm happy with my work. 8. I'm happy with my financial situation. 5. I'm satisfied with the money I have to live on. |

Appendix B. The Experimental Scale Used to Examine SWB in the Present Study

10. References

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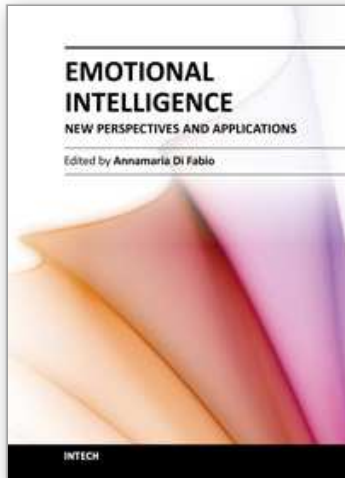
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Emotional intelligence is an emerging construct for applied research and possible interventions, both in scholastic, academic and educational contexts, organizational contexts, as well as at an individual level in terms of people's well-being and life satisfaction. From the presented contributions, it emerges how this volume is characterized by an interest to give an international overview rich of stimuli and perspectives for research and intervention, in relation to a promising variable of current interest, such as emotional intelligence. The goal is that this book further contributes to the affirmation of a particularly promising variable, such as emotional intelligence, which requires a greater interest and attention in both research and application field.

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