EFFICACY OF BEHAVIOURAL INTERVENTIONS IN THE DEVELOPMENT OF EMOTIONAL INTELLIGENCE AMONG PARAMEDICAL STUDENTS

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Abstract
The objective of the present study was to enhance the level of Emotional Intelligence (EI) of a sample of paramedical professionals through the application of behavioural interventions and subsequently, to identify the level of EI after intervention. One of the main dimensions in Bar-On's EI model is stress management, thus enhancing the stress management skill should ultimately develop the level of EI. Convenient sample of 120 paramedical students were selected from a paramedical institution, Tamilnadu, India. A Pre-test post-test control group design was adopted and behavioural interventions namely slow-deep breathing exercise and genital muscle relaxation techniques were administered to enhance the level stress management score. Experimental group participants took part in the interventional program for a period of 90 days. The result revealed that there is a significant improvement in the scores of stress management dimension underlying Bar-On's EI Scale after behavioural intervention. Therefore, behavioural interventions will help individuals to enhance stress management capability.

Keywords: emotional intelligence; stress management; slow-deep breathing exercise; genital muscle relaxation technique; emotional regulation

Introduction

Emotional intelligence (EI) is arguably required ability for an individual to exert effective performance in team, adjust with social situations, manage

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stress, understand oneself and others and also regulate emotions. Specific, behavioural interventions facilitate for improving certain skills underlying in the emotional intelligence facet. An experimental approach was undertaken to examine the efficacy of behavioural interventions to enhance emotional intelligence. Emotional intelligence as an array of non cognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures (Bar-On, 1997 a).

Emotionally intelligent persons are also referred as well adjusted, fully functioning or life smart. Some authors specify Emotional Quotient (EQ) as a means of measuring EI. EI and stress management are positively correlated. Thus, emotionally intelligent persons are good emotional managers. The present study mainly focused to enhance the stress management skills and to identify level of EI employing behavioural interventions. The study population comprised paramedical professional students who belong to nursing and physiotherapy and their future work environment is probably emotional provoking in nature.

Paramedical professionals often face work related challenges and overwhelmed to distressful work environment. Many occupations and life styles can be described as stressful, but those working with the human sufferings and life saving activities are agreeably at higher risks. Paramedical and medical professionals often need to work in a team and engage in emotional provoking work situations. The role of paramedic is engaging patients and their emotions is very much that of the medical professionals. Frequent involvement in such situations reinforce negative emotions like distress, burnout, irritability, job dissatisfaction, aggression and other health related problems. Health care workers have reported to have job stress in hospital setups. In the health care environment, members of the health care team need to be aware of controlling one's own emotions, handling relationships and understanding one self and of others. Work related emotional intelligence and competencies are essential for effective work performance (Matthew, Zeidner, & Roberts, 2004).

Health care workers namely physicians, nurses, physiotherapists, pharmacists, medical lab technicians, social workers, human relation personnel and other therapeutic professionals required to be emotionally intelligent to excel in situations with work related challenges. Bellock (2000) and Ellam (2000) states that EI appeared to be a desired skill in the patient care

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environment and it requires the ability to detect and manage emotions when interacting with patients. Job structure and frequent contact with patients, patient's sufferings and deaths are crucial factors that induce stress and health problems to nurses (Augusto Landa, Lopez-Zafra, Berrios Mortos, & Aguilar-Luzon, 2008).

Stress and burnout have the far reaching effects for nurses in their clinical and professional lives (Gillespie & Melby, 2007). Distress and poor adjustment is the significant issue facing nursing education (Warbah et al., 2007).

Emotions play an important role in a profession that requires not only technical expertise but also psychologically oriented care, knowledge about the self and emotions in nursing would be crucial to further development and growth of the profession (Cowin, 2001; Maria, Landa, & Zafra, 2010). In the health care system, intrapersonal and interpersonal skills are required to cope up with the complex demands. These are the skills that help the workers to cope up with stress (Cadman & Brewer, 2001). As a member of the paramedical team it is very hard for the nurses to be calm during crises situations, unless they are not proficient in managing their emotions. This emotional outbursts lead to negative effects in nurse-patient relationships (Rego, Godinho, Mc Queen, & Cunha, 2008). It is obligatory to prepare the paramedical students for facing the future work related challenges and effective functioning. Emotionally intelligent nurses have improved relationship with others, an important aspect of nursing role (Reeves, 2005).

Freshwater and Stickley (2004) argue emotionally intelligent nurse can work in harmony with his/her thoughts and feelings. The importance of the development of empathy (as an aspect of emotional competence) appears as a central factor in many nursing theories (Parker, 2002; Parker & Kulik, 1995). Some studies pinpoints emotional intelligence allows nurses to develop sound therapeutic relationships with patients and their families and to better manage stress (Cadman & Brewer, 2001; Calvalheiro, Moura Junior, & Lopes 2008).

Hatfield, Cacioppo, and Rapson (1994) state that the ability to manage emotions should help individuals experience and express emotions that contributed to favorable social encounters in part through emotional contagion. The ability to manage emotions can help people nurture positive affect, avoid being overwhelmed by negative effect and cope up with stress (Mayer & Salovey, 1997).

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Literature evidences of Goleman (1995) and Mayer, Salovey, and Caruso (2000) clarified high level of EI leads to optimal functioning and lowered emotional distress. This finding is also supported by Ryff (1998) who argues EI was generally associated with greater positive functioning and lowered emotional distress.

In addition to emotional wellbeing, EI is related to job performance, relationship management and understanding oneself and others. EI positively correlates with performance level among clinical staff nurses (Codier, Kooker, & Shoultz, 2008). Performance that includes interpersonal, stress coping and problem solving skills that are necessary for the effective functioning in the work place. The ability to manage one's emotion is positively related to the quality of social interactions, emotion regulation skills are important for fostering the meaningful social relationships that are important for psychological well being (Lopes et al., 2004).

Managing emotions is the highest branch in Mayer, Salovey, and Caruso's (2000) ability based model. EI model can perhaps be considered to be synonymous with self regulation of emotions and the self management clusters, including emotional self regulation as one of the main emotional competency categories (Boyatzis, Goleman, & Rhee, 2000). This confirms that there is a strong relationship between self regulation skills and EI. Comparatively emotionally intelligent persons can control emotion under pressure than person with less EI.

EI is essential for a positive occupational and career assessment, job performance and satisfaction, coping with occupational stress; therefore work place training plays an important role in enhancing the level of EI (Matthews, Zeidner, & Roberts, 2004).

EI is a collection of abilities that can be developed. Developing one specific ability or set of abilities that increases the level of EQ. EI is believed to be the cornerstone of developing and increasing such abilities (Goleman, 1995; Tomer, 2003). Many scholars have attempted to enhance the non cognitive capabilities employing various psychological interventions.

Skills such as non technical skills or abilities i.e. interpersonal skills, problem solving skills, stress management skills, empathy, assertiveness, can be developed through appropriate interventions. Improving non-technical skills resulted in improved emotional competencies. Bar-On (2006) states that an emotionally intelligent behaviour can be enhanced in schools at wok place and

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in a clinical setting. A study conducted by Sjolund and Gustafsson (2001) indicates that 9 out of 15 subscales of EQ-i have significantly increased after intervention. Improvement was found in EI and sales performance after the intervention (Palmer & Jennings, 2007). Besides, EI training program promoted self efficacy of the visually impaired students and showed no improvement in the self-efficacy (Eniola & Busari, 2007). Similarly, a pre and post interventional study using human model therapy was conducted by Maree and Finestone (2007) showed a significant improvement in the Interpersonal, Adaptability, General Mood and Total EI score.

EI Coaching strengthened weaker Emotional Social Intelligence (ESI) factors in the five sub scales of emotional intelligence among patients who participated in the stress management program (Orme, 2003). Similarly, EQ of myocardial infarct patients such as self awareness, interpersonal sensitivity, influence, motivation and emotional resilience subscales and total EI increased after a stress management program (Dunkley, 1996). And also various training techniques such as lectures, role plays, videos, exercises, dialogue and one to one feedback were applied to increase the stress management capabilities (Dulewicz & Higgs, 2004).

Stress management programs target the self regulation dimension of EI and that produce significant improvements in coping and health outcomes. The most effective program to manage stress is such as breathing exercise, autogenic training, physical and mental relaxation, mental imagery and cognitive restructuring (Cherniss & Adler, 2000).

Brackett, Rivers, Reyes, and Salovey (2010) asserted that knowledge and skills that comprise emotional intelligence can be taught and developed. A study conducted by Slaski and Cartwright (2002, 2003) indicates that the EI scores of the training group increased significantly from pre to post training. Many studies pinpoint EQ is improvable through manipulating some or all factors underlying in EI. Jain (2002) studied the effectiveness of Emotional intelligence intervention among pre adolescence showing positive impact on intrapersonal, interpersonal, adaptability, stress management and general mood. Above cited research literatures confirms that EI comprises of soft skills that can be learned or improved through various behavioral techniques. Though, there is limited number of studies documented aforesaid on EI enhancement, the following objectives were formulated.

Objectives

To evaluate the effectiveness of behavioural interventions to enhance the level of EI among paramedical students.

Specific Objectives
1. To impart behavioural interventions to enhance stress management skills to increase the level of EI among paramedical students.
2. To identify specific factors underlying in EI that increases due to behavioural interventions.
3. To identify underlying factors that contributes to increase overall EI Score of the participants.

For achieving above cited research objectives the following research design was employed and selected behavioural interventions applied to enhance the overall EI score in Bar-On's EQ scale.

Method

Participants

A sample of 120 students belongs to Bachelor of Physiotherapy, Bachelor of Nursing and Master of Nursing were drawn from a selected paramedical Institution located in Tamilnadu, India. Both Female (N=90; M=22.98, SD=5.03) and Male (N=10; M=19.2, SD=5.25) participants belong to the age group of 18 to 34 and their medium of instruction was English. Their highest qualification was Post Graduation in Paramedical Sciences. Among 120 participants (M=22.24, SD=4.93), 100 were included for the main study and assigned randomly to experimental and control groups. Twenty (N=20) participants were eliminated from the study due to their unwillingness to participate throughout the study period.

Instruments

Bar-On's EQ scale (1997) was administered to collect data.

Emotional Intelligence Scale (Bar-On, 1997c). The Scale consists of 133 statements with 5 dimensions of 15 subscales of EI. This scale primarily intended to measure a total EQ score and five additional EQ composite scores based on 15 subscales. Emotional Quotient provides an indication of one's non - cognitive ability to succeed in coping with environmental demands. This

scale consists of 133 items and these items are organized under 5 different dimensions: intrapersonal skill; interpersonal skill; adaptability; stress management; and general mood.

It takes approximately 15 to 30 minutes to complete the scale. It can be administered individually or group. Reliability of the scale was established based on 30 samples. Stability of the tool was established by test retest method. Co-efficient of correlation was found to be .79 in the re administration after 30 days. Internal consistency of the tool was obtained by split- half reliability. The correlation was found to be .82.

Procedure

The research method adopted in the present research was an intervention in which paramedical students belonging to nursing and physiotherapy was participated in the study for a period of 90 days. Data was collected administering questionnaire before and after intervention. The participants were instructed to practice the intervention twice a day. Inferential statistical method was employed to test the hypotheses.

The following two behavioural interventions were applied to enhance the stress management skills of the participants.

Slow-Deep Breathing Exercise

The Slow-Deep breathing exercise was developed by Michael Grant White (1975) was used and it reduces hypertension, anxiety, stress, anger and other emotional states. Slow breathing regulates the emotion and diverts the mind from emotional stimuli to inhalation and exhalation. Slow and deep breath approximately 5 to 7 breaths per minute that regulates and reduces stress.

The participants were instructed to sit on the floor in a steady posture. By closing eyes inhale deep breathe slowly from the abdomen and exhale the breath two times slower than that of inhaling. Approximately the breathing rate should be 5 to 7 breaths per minute. The participants were instructed to repeat the same procedure for 20 minutes continuously.

Genital Muscle Relaxation Technique

Genital Muscle Relaxation Technique was developed by Vedagiri Ganesan (1986). It is a form of muscular relaxation exercise that helps to reduce emotional arousal and inhibits impulses. It is a popular technique used to manage stress and control sexual impulses.

The participants are instructed to sit in *Vajrasana* - a sitting posture, which tightens the lower limb muscles, and keep the spine and neck steady. Take a deep breath and contract the anal and genital muscles simultaneously and count the numbers from 1001 to 1010 and then slowly relax the muscles. Repeat the same procedure for 10 times.

Design

A pre test post test control group design was adopted for which 120 participants were drawn. Bar-On's EQ scale (1997 b) was administered initially to identify the level of emotional intelligence under five dimensions with 15 sub scales present in the scale. Among them 100 participants were randomly assigned to experimental and control groups respectively. Selected behavioural interventions were applied to experimental group and no intervention was applied to control group. In order to ascertain the effectiveness of the behavioral interventions, a post test was conducted on both experimental and control groups.

Statistical Analysis

The collected data were statistically treated and to find out the significant difference a separate 2 x 2 repeated measures Analysis of Variance (ANOVA) was employed to analyze each dimension and the sub scale underlying in the Bar-On's EQ scale.

Results

The table 1 depicts the 2 x 2 repeated measures ANOVA on emotional intelligence. The effectiveness of behavioural interventions was measured by 2 x 2 (2 groups x 2 times) repeated measures ANOVA, where the main focus of interest was to examine the main effect and group x time interaction. Separate ANOVAs were worked out to observe the significant difference between control and experimental group under two (pre and post) intervention condition on 5 dimensions and overall EQ score and 15 subscales underlying in 5 dimensions of EQ scale. Among 5 dimensions of EQ, there is a significant difference found only in the main effect $F(1, 98)=27.549$, $p<.001$ and interaction effect $F(1, 98)=6.467$, $p<.013$ of stress management dimension than all other dimensions including overall score of EQ. Further, the analysis revealed the experimental participants differed significantly over pre and post

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test scores on stress management dimension whereas the control group remained stable in all other dimensions including overall EQ score. Hence, the hypothesis "There is a significant difference between the pre test and post test scores of stress management dimension of EQ scale" is accepted. Therefore, there is a significant influence of behavioural interventions on stress management skill among the participants and further the result shows the stress management skill is improved among experimental participants by practicing behavioural interventions over time.

Table 1. Depicts the pretest post scores of control group and experimental group on 5 dimensions of emotional intelligence

No.	Dimensions	Control group		Experimental group		F (Effect Size)	Group x Time Interaction F (Effect Size)
		Pre test Mean (SD)	Post test Mean (SD)	Pre test Mean (SD)	Post test Mean (SD)		
1	Intrapersonal	137.96 (17.24)	138.20 (17.33)	135.22 (16.16)	133.06 (12.94)	0.210 (0.002)	0.328 (0.003)
2	Interpersonal	106.80 (16.76)	108.14 (13.90)	102.32 (13.12)	102.44 (12.32)	0.177 (0.002)	0.124 (0.001)
3	Adaptability	86.84 (13.05)	87.70 (12.96)	87.44 (10.63)	84.80 (12.09)	0.324 (0.003)	1.251 (0.013)
4	Stress Management	57.88 (9.42)	60.68 (8.37)	58.64 (8.39)	66.72 (3.64)	27.459** (0.219)	6.467* (0.013)
5	General Mood	62.54 (10.27)	63.82 (9.64)	60.42 (14.48)	60.64 (8.49)	0.294 (0.003)	0.147 (0.001)
6.	Overall EQ	452.02 (57.03)	458.54 (51.09)	445.96 (48.16)	447.66 (37.53)	0.360 (0.004)	0.124 (0.001)

Note: Alpha 0.05 level

Secondly, the analysis examined the significant difference between control group and experimental groups under two conditions (pre and post test) on 15 subscales underlying 5 dimensions of EQ scale (*see* Table 2). The result revealed that there is no significant difference found in the main effect F(1, 98)=0.109, p<.743 whereas there is a significant interaction effect in flexibility subscale of the five dimensions of EQ scale F(1, 98)=5.201, p<.025. The result revealed that there is a significant difference found in the stress tolerance (main effect) F(1, 98)=24.959, p<.001 and interaction effect F(1, 98)=8.105, p<.005. Similarly, there is a significant difference found in the main effect of impulse control subscale F(1, 98)=6.431, p<.013, but there is no significant difference occurred in the interaction effect F(1, 98)=0.345, p<.558. Experimental participants exhibited significant improvement only in stress tolerance and

impulse control subscales present in 5 dimensions of EQ scale. Thus, the hypotheses respect to stress tolerance and impulse control subscales were accepted. The improvement in these two subscales contributed to increase the score of stress management dimension and this difference is attributed to the influence of behavioural interventions practiced by experimental group participants. Though, there is a slight changes occurred in the subscales of EQ among control group participants still there is no significant changes observed and the scores remained stable in all subscales over time.

Table 2. Shows the pre test and post test scores of experimental and control group

No.	Dimensions	Control group		Experimental group		F (Effect Size)	Group x Time Interaction F (Effect Size)
		Pre test Mean (SD)	Post test Mean (SD)	Pre test Mean (SD)	Post test Mean (SD)		
1	Emotional Self-awareness	27.18 (5.37)	27.84 (5.04)	26.84 (4.71)	26.58 (3.61)	0.07 (0.001)	0.496 (0.005)
2	Assertiveness	21.62 (4.01)	21.88 (3.06)	21.02 (3.70)	21.32 (3.07)	0.295 (0.003)	0.002 (0.000)
3	Self-Regard	34.24 (5.62)	34.58 (5.86)	32.68 (5.75)	32.66 (5.33)	0.043 (0.000)	0.054 (0.001)
4	Self-Actualization	32.96 (4.92)	32.14 (5.19)	32.50 (4.07)	30.90 (4.35)	3.956 (0.039)	0.497 (0.005)
5	Independence	21.96 (5.15)	21.76 (5.37)	22.40 (5.06)	21.60 (4.16)	0.481 (0.005)	0.173 (0.002)
6	Empathy	29.34 (6.14)	29.96 (4.69)	28.42 (3.64)	27.98 (4.52)	0.018 (0.000)	0.614 (0.006)
7	Interpersonal Relationship	40.58 (9.32)	41.12 (6.94)	37.82 (6.03)	38.42 (5.89)	0.239 (0.002)	0.002 (0.000)
8	Social-Relationship	36.88 (5.23)	37.06 (4.75)	36.34 (6.02)	36.04 (4.66)	0.006 (0.000)	0.100 (0.001)
9	Problem–Solving	27.78 (4.33)	26.58 (5.61)	26.80 (4.44)	27.88 (5.01)	0.007 (0.000)	2.513 (0.025)
10	Reality-Testing	33.12 (6.30)	33.12 (5.98)	34.26 (4.89)	31.80 (5.05)	3.058 (0.030)	3.058 (0.030)
11	Flexibility	25.94 (5.67)	28.00 (4.55)	26.66 (5.20)	25.12 (5.12)	0.109 (0.001)	5.201* (0.050)
12	Stress-Tolerance	28.54 (6.10)	30.08 (5.40)	27.58 (5.27)	33.20 (2.27)	24.959*** (0.203)	8.105** (0.076)
13	Impulse-Control	29.34 (5.26)	30.60 (4.82)	31.50 (5.42)	33.52 (2.42)	6.431* (0.062)	0.345 (0.004)
14	Happiness	33.62 (5.96)	34.28 (5.93)	32.88 (7.77)	32.98 (5.14)	0.188 (0.002)	0.102 (0.001)
15	Optimism	28.92 (5.72)	29.54 (5.11)	27.96 (8.19)	27.66 (5.18)	0.034 (0.000)	0.284 (0.003)

Discussions

The main objective of the study was to enhance the level of EQ with the application of behavioural interventions. In order to meet the objectives, initial assessment of EI was done using Bar-On (1997) EQ scale, followed by behavioural interventions Slow-Deep Breathing Exercise and Genital Muscle Relaxation Technique were applied to enhance the stress management capability of the participants.

The investigation was mainly focused to enhance the stress management skills of the participants. In Bar-On's EI model, the main dimension is stress management. Improving the stress management skills that contribute for increasing the level of overall EI. The participants of the present study were paramedical students; they need skills to manage stress during rage or crisis situation and also to exert effective job performance. Importantly, their nature of job is life saving and rendering care to the patients who suffer from physical and mental illnesses.

The findings of the present study reveals that the stress management scores of the participants increased in the experimental group after behvioural interventions. Thus, the hypothesis, 'There will be a significant difference between before and after intervention on stress management dimension of EQ' is accepted. Similarly, the hypothesis, 'There will be a significant difference between before and after intervention on stress tolerance subscale of EQ' is accepted. And also, the hypothesis, 'There will be a significant difference between before and after intervention on impulse control subscale of EQ' is accepted. The finding of the present study is in line with the study conducted by Orme (2003), Maree and Finestone (2007), Dunkley (1996), Sjolund and Gustafsson (2001), Palmer (2007), (Dulewicz & Higgs, 2004). Contrary to the present result, the findings of Eniola and Busari (2007) shows there was no improvement in the EI training program. In the present finding there is no improvement in the total EQ score which is contrary to the findings of Dunkley (1996), Slaski and Cartwright (2002, 2003) and Maree and Finestone (2007). Hence, the study was focused only on stress management dimension that showed improvement in the post test scores when compared to control group. On contrary to the expectation, the score of the reality testing subscale was significantly decreased after intervention in the experimental group which is contrary to the result revealed by Orme (2003), in that study the reality-testing score was increased from 97 to 109. Hence, the null hypothesis, 'There

59

will not be a significant difference between before and after intervention on reality testing subscale of EQ' is accepted. This might be caused due to the influence of other variables such as time inadequacy, over crowd, curriculum and unable to practice the exercises properly. In the present study, stress management training through behavioural intervention was used as a mechanism to enhance EI. Although there was no significant improvement found in the level of total EQ, the targeted dimension of EQ and its subscales stress tolerance and impulse control showed significant improvement in the experimental group. Hence, the influence of behavioural interventions slow-deep breathing exercise and genital muscle relaxation technique is a means of managing stress has been established. The investigator has hypothesized that EI would have a total improvement in the post intervention. Though, this could not be established, the findings in the case of stress management have been achieved.

Limitation of the present study

The study comprised students of nursing and Physiotherapy disciplines were drawn from only one institution in Tamilnadu, India. Comparatively the ratio of male participants was less than the female participants as the sample due to the preference. Hence, gender generalizations could not be made. The researcher took much effort to control the influence of extraneous variables and attempted to maintain a controlled experimental setting. However, the influence of variables such as interaction with control group participants and regular and precise practice of behavioural interventions could not be controlled that might be influenced in the post test scores.

Recommendations for further research

From the present investigation, it can be suggested that similar study can be conducted with a larger sample comprising different professional groups. Likewise such interventions can be applied to enhance other dimensions such as intrapersonal, interpersonal, adaptability, general mood, and overall EI. Such interventions can be a useful tool to improve the adjustment capabilities of individual in social settings. Similar interventional programs can be formed as a part of the curriculum in the institutions that can facilitate individual to acquire adequate level of EI. An in-depth investigation can be conducted to enhance all underlying factors in EI will help individual to be an effective member in the family and society.

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Conclusions

From the above findings it can be concluded that the behavioural interventions significantly influenced in enhancing the stress management scores. Though, there is no signigficant improvement in the overall score of EQ, there is a significant improvement in the stress tolerance and impulse control scores underlying in the stress management dimension. Therefore, the behavioural interventions herein employed have influenced in improving the stress management skills among the participants. The major dimension in EI is stress management; improving stress management skill will contribute in the development of overall EI. Though this is not achieved other dimensions underlying in EI can be focused to enhance EI enhancement program.

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