

Reducing Stress in Youth: A Pilot-Study on the Effects of a University-Based Intervention Program for University Students in Pune, India

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Abstract

Mental health problems among youth have become important public health concern for many low & middle-income countries. As part of a research program to improve mental wellbeing in Pune, India, a university-based intervention was developed for students of two educational institutes. In one month, 33 students (age 18-22) participated in a series of 2-hour sessions in which they were stimulated to learn better coping skills to deal with stress and anxiety. The interactive sessions were facilitated by a psychologist and volunteers of a suicide prevention NGO. Rational Emotive Behaviour Therapy (REBT) approaches were used to help students identify stressors and find alternative thought patterns towards the stressor. Playful exercises, such as theatre, dance and poetry, were used to develop self-esteem, self-expression and a better sense of control in students. Throughout the program, relaxation methods, such as Emotional Freedom Technique (EFT), were practiced to help reduce stress in students. To study the impact of the intervention, data were collected, before- and after the intervention and in an eight month follow-up with the Perceived Stress Scale (PSS), in combination with open questionnaires and field notes. Preliminary results show a significant decrease in average stress scores in students after the program in comparison to before the intervention (p -value is $0.044 < 0.05$). Students reflect upon the program as helpful and specifically emphasize the role of poetry, dance & EFT as main contributors. In follow-up tests perceived stress scores remained lower than at base-line, although not significant. Booster sessions are suggested to sustain the benefits. Overall, the results of this pilot study show that low threshold, university-based interventions, could be useful in stimulating psychosocial well-being in youth.

Keywords: general suicide prevention, higher education, psychosocial distress, youth

1. Introduction

Mental health disorders among youth have become an important public health concern for many rapidly developing countries, including India, China and Eastern European countries (Sidhartha & Jena, 2006; Patel et al., 2007; Kim & Singh, 2004). Research suggests that in India, more so than in high-income countries, psycho-social stress plays a significant role in creating mental disturbances in youth (Vijayakumar, 2004; Jacob, 2008). Particularly students seem to experience high levels of distress, partly by being caught in a system of competitiveness, in which they face various financial, psychosocial and cultural pressures (Bathla et al., 2015). Stress seems to be a real cause for concern, as this may lead to maladaptive health behaviours, including substance abuse, violence and suicidal ideation (Arun & Chavan, 2009; Banu, Deb, Vardhan, & Rao, 2015; Pillai, Andrews, & Patel, 2008). To illustrate, in India, only 21% of suicides seem to be motivated by illnesses (including mental disorders) (NCRB, 2007), while many of the remaining issues reveal deep structural concerns in Indian society and the social pressures people face (Radhakrishnan & Andrade, 2012).

Young adults are mostly prone to develop stress and anxiety during their studies, particularly when failing exams, or experiencing stress from life events, such as conflict or negative social interactions (Radhakrishnan et al.,

2012; Joshi, Gumasta, Kastuwar, & Deshpande, 2012). Another notion, which is less well explored, is that young people struggle to reconcile traditional values with modern life, which causes distress (Harvey, 2003). The increasing exposure to global ideas and values impacts the way young people evaluate and give meaning to their life (Aggarwal & Berk, 2014; Vijayakumar, John, Pirkis, & Whiteford, 2005). Inter-generational conflicts with parents and other family members may add to personal distress in young adults, particularly for those who are living in the cities (Vig & Jaswal, 2008; Jiloha, 2009). Patel et al. (2007) in their article on mental health of young people, warn therefore that the economic gains that are brought about by the rapid economic growth, should not come at the cost of the wellbeing of India's youth.

Various studies among high-school and college students reveal high levels of distress and anxiety in cities such as Ranchi, Delhi, Hyderabad & Chandigarh (Sahoo et al., 2010; Augustine et al., 2011; Arun et al., 2009). Fewer studies are available on the presence and influence of stress in the context of university students, although in Maharashtra, students in various disciplines were found to experience high levels of stress (in 27.7% of female students and 20.4% of males), related to academics and lifestyle factors (Waghachavare, Dhumale, Kadam, & Gore, 2013). Other studies among medical students in Maharashtra (Supe, 1998) and students in West Bengal (Gupta et al., 2015) also reveal high levels of stress related to their academic environment. In other studies causes of stress were found to be related to factors such as low quality education, long college hours, transitions in learning environment (often more impersonal and rigid), conflicts with peers and cultural conflicts, moving away from home and social support systems etc. (Cherkil et al., 2013; Kumar, 2009). Other important factors related to stress are long and frequent board exams, competition and the fear of failing, stimulated by high expectations and pressures to perform (Nazeer & Sultana, 2014; Shukla et al., n.d.). In general, students in India seem to experience difficulties in juggling various demands related to emerging adulthood, in contexts that have become increasingly challenging. Various scholars therefore suggest population-based health interventions in educational settings to prevent mental health problems, and improve overall mental wellbeing in youth (Jacob, 2008; Sahoo & Khess, 2010; Srilaka & Kishore, 2010).

Population-based interventions, such as in school-settings, may be particularly useful for young students who are dealing with commonly faced issues, also because mental-health services catered to youth are relatively scarce in India (Patel et al., 2007; Latha & Reddy, 2007). According to various statistics, only about 4000 psychiatrists are available in the country to serve a mentally ill population of 50 million people (Mohandas, 2009). Although the Indian government launched a mental health program to provide universal access to mental health, partially in response to the high suicide rates, it will take a lot of time and financial investment before the mental health care system can respond to the demand in India. In the meantime, alternative population-based strategies are needed which can reduce the need, and the costs of individual counselling (Neil et al., 2009). It is argued that mental health interventions should ideally work within the school/university-environment, as they form a natural setting in which students learn, interact and develop (Latha et al., 2007; Neil & Christensen, 2009; Rones & Hoagwood, 2000; Regehr et al., 2013). Patel et al. (2007) also argue that schools and colleges offer a unique place for early identification, reduction of risk factors and promotion of coping strategies in youth. Schools and universities have the necessary infrastructure to reach out to youth, capable teachers who can facilitate elements of helpful processes, and the credibility within the direct social network of students to roll out effective interventions (Latha et al., 2007). Finally, health seeking behaviour among young adults and students is often low (van Heusden et al., 2009). School-based programs can herein help to stimulate preliminary health-seeking behaviour, which is often lacking due to time or transport barriers, stigma and unawareness, or the belief that stress is normal and/or not serious (Regehr et al., 2013).

1.1 Mental Health Interventions at Schools

Internationally, school-based programs have been effectively used to respond to various mental health needs, including depression, stress, substance abuse, conduct problems and emotional/behavioural problems, involving multiple stakeholders (such as teachers, parents and community members) and various program designs (Rones et al., 2000). Schools are perceived as places associated to learning, which enables the acquiring of new skills (Rambaldo, Wilding, Goldman, McClure, & Friedberg, 2001), including healthy coping skills and stress control (Rones et al., 2000). Neil et al. (2009) describe three forms of prevention and intervention programs, including universal, selective and indicated programs. Universal programs focus on the whole population to enhance general mental health, regardless of any symptoms or indicated risk factors, while selective and indicated programs tend to pre-selected students. The latter seem to be more effective, probably because of the greater probability of change in indicated students (Reivich, Gillham, Chaplin, & Seligman, 2005).

Interventions in schools, universities & colleges that focus on reducing suicidal ideation, depression, anxiety, stress or overall wellbeing in students often involve methods derived from Cognitive Behavior Therapy (CBT), psycho-education, relaxation techniques, Dialectical Behavior Therapy (DBT), Poetry, and/or Mindfulness-Based Stress Reduction (MBSR) (e.g., Rones et al., 2000; Neil et al., 2009; Gould et al., 2003; Shapiro et al., 2011). Interesting examples of interventions provided at universities have been implemented in the past decade, among others in Connecticut, USA, where 43 students were taught to practice Transcendental Meditation (TM) over the course of two semesters and showed decline in self-reported stress, anxiety and perfectionistic thoughts (Burns, Lee, & Brown, 2011). A study by Gaab, Sonderegger, Scherrer and Ehlert (2006) successfully used Cognitive Based Stress Management (CBSM) techniques to reduce anxiety and somatic symptoms in economy students in Switzerland. Finally, a study by Shahidi et al. (2011) in which poetry was used to reduce anxiety, depression and stress in female students in Iran also showed promising results.

Such intervention programs to improve general mental health among University youth are relatively scarcely documented in India. An example of an intervention in India which is focused on improving life skills in high-school students show good results, particularly related to self-esteem, coping and prosocial behaviour (Srikala et al., 2010). Similar initiatives in universities, which include a combination of tools, could be used to prevent problems in students at an early stage, and could relieve the still developing mental health structure in a cost-effective manner. The focus should herein probably lay on, besides psycho-education, a combination of creative, playful methods, allowing students to express themselves in a way that counteracts the disciplinary and competitive nature of the education system. In this pilot study, a stress-management program was introduced at two universities in Pune, India, and evaluated with regards to how it reduced the stress-levels and improved the overall mental wellbeing of students.

2. Case Description: A University-Based Stress Management Program in Pune, India

This program was initiated as part of a broader project to reduce suicidality in Pune, India; it started in 2013 in collaboration with an NGO working in the field of suicide prevention and researchers of the VU University in Amsterdam. During early explorations in the city of Pune, causes of stress were explored among university students. Their needs were articulated through focus groups and questionnaires. The students expressed experiencing problems with self-esteem, fear of failure, relationships and studies. Based on this input, the team developed a program for students in response to:

- **Low self-esteem and fear of failure:** For most students, academic pressures, parental pressures and comparisons among students were causes of anxiety and stress, among others including high expectations, perfectionistic thoughts and fear of failure. Some students also reported having self-destructive thoughts with regards to their appearance.
- **Friendships, love and relationships:** Creating bonds and relationships at University was important for students, but also difficult. To express and share emotions with peers was considered difficult, and even more so with the opposite sex. Issues with peers and lack of communication made some students feel lonely and isolated. Being far removed from home also added to the feelings of loneliness for some students.
- **Study-related struggles:** Stress was also caused by factors related to the practice of studying, both at the University as well as beyond. This involved examination periods and class attendance, which are highly controlled at the Universities, and frustrations with the hierarchical structure of the university. Some students also expressed having little confidence in the non-partiality of teachers, or in the quality of their teaching. Stress was also caused by the financial and organizational implications of studying, for instance, commuting to the university (in many cases students had to use scooters, and petrol prices are high), living in poor conditions at the student hostels, or planning studies in order to avoid backlogs.

A combination of research-based tools was introduced to lower psycho-social distress in students and improve their overall well-being. In this pilot study, three sessions were set out to 1) improve self-esteem and reduce fear of failure, 2) to improve self-expression, connectedness with oneself and with others, and 3) to lower the stress around study-related topics. In each session, stress-reducing tools were used to teach students how they could relax themselves in times where stressors would be piling up high.

To improve self-esteem and reduce fear of failure, the Rational Emotive Behavior Therapy (REBT) approach, a form of CBT developed by Albert Ellis, was used to help students evaluate their own thought and belief patterns with regards to important stressors and their emotional responses to this, based on the A-B-C model (Ellis, 2003; Ellis & Dryden, 2007). This simplified psychological model explains the interaction between external and/or

internal Activating events (or triggers), the Beliefs of the person, and the Consequent emotions and behaviors (Ellis et al., 2007). Students would, for instance, be encouraged to look at their own beliefs when faced with a mistake or an examination failure, and how they would usually respond to this stressor. The students were invited to perceive certain “failures” as valuable and essential learning moments that can help someone to grow. The latter is also referred to by Carol Dweck (2007) as going from a fixed mind-set to a growth mind-set.

Emotional Freedom Technique (EFT) was used in accordance to heal the emotional response to the stressor. EFT is a non-invasive meridian therapy, which is helpful in stimulating moment-to-moment processing of emotional responses. EFT is accessible as it can be taught to participants to self-administer tapping on various acupressure points (Boath, Stewart, & Carryer, 1999). It makes use of the sentence: “*even though, I have this ... [e.g., fear of failing in my exam]..., I still deeply and completely love and accept myself*”. This sentence, can be altered according to the stressor and will be repeated while doing several tapping rounds, until the emotional response level is reduced to zero. It has been used in several settings (among others for phobia’s, depression and stress reduction) and shows promising results, particularly because it is a cost-effective therapy approach (Church, Yount, & Brooks, 2012; Church, de Asis, & Brooks, 2012; Brattberg, 2008; Bougea et al., 2013). A variation of EFT was used which involves tapping on the karate-chop pressure point and saying the sentence three times, and then putting the palms one over the other at the centre of the chest—just below the collar bone—and taking seven deep breaths (CHII, 2008).

With regard to the second topic raised by students, which involved relationships with others, playful exercises as well as dance were used to cross (gender-related) boundaries, improve sharing and bonding, and overall connection between the participants. Such exercises were derived and adapted from Interplay (www.interplay.org), a body of work that involves storytelling, physical movement, vocal play, and improvisation, for healing and bonding. Examples of such exercises are communicating in gibberish, building up dramatic scenes together as a group, or dancing exercises in which people mirror each other and follow each other’s lead. Play is considered a strong antidote to stress, partly because it increases joy, stimulates bonding and friendship building, and improves emotional regulation (Gray, 2011). Play is therefore also increasingly used in therapies in various settings, including schools, to improve mental health (Cattanach, 2003, pp. 135-187; Reddy, Files-Hall, & Schaefer, 2005).

With regard to the study-related stressors, the aforementioned methods of REBT, EFT and play were considered useful in enhancing positive thinking and to empower students to respond differently to certain stressors. In addition, poetry healing, as described by John Fox (1997) was used to enable people’s self-expression, which can help to relieve stress. Poetry therapists use poetry to increase emotional resilience and mental well-being in patients by providing ways to voice their emotions. In several studies, the use of poetry reading, as well as individual poetry writing, to improve mental health has been shown (Mohammadian et al., 2011; Tegner et al., 2009). Finally, Mindfulness-Based stress exercises, such as guided meditation, were used in each session to help students center themselves and lower their stress (Kabat-Zinn, 2003).

3. Methodology

This pilot study aimed to explore the possibilities of implementing a research-based program to reduce the psycho-social distress in a non-clinical student population of two educational institutes in Pune. In this study we evaluated the implementation process and outcomes for students with regard to their self-reported stress levels. For the first objective, we explored the feasibility and appropriateness of the program based on the qualitative feedback of students, the research team, and the school management. For the second objective, we relied on quantitative questionnaires to study the impact of the program on self-reported stress immediately and then 8 months after the intervention. The program itself was implemented as a universal intervention as it generically invited students to participate without selection or indication process in advance (Reivich et al., 2005)

3.1 Recruitment Strategy and Study Population

The research team worked together with the management of two private institutes affiliated to one university, which were chosen for their openness to initiate and organize the program around their academic agenda. In the first institute (institute X), we worked together with students studying in the department of management and organization. In the second institute (institute Y) the sessions were conducted with students from Engineering Studies. A letter was sent out to invite students throughout the departments to take part in parallel focus group sessions in advance of a Stress-Management program. The letter explained that there would be an introductory session, exploring causes of stress in students (including questionnaires), after which a program would be offered to improve stress management and mental well-being. In total 110 students turned up for the introduction, after

which 42 students decided to want to take part in the program. The criterion for selection was the foremost their own willingness to participate in such a program, although both non-participating as participating students will also be assessed to understand and compare the perceived need in both groups. The 42 students agreed to participate in this study by signing a letter of consent. Of this group, 33 students completed the entire program, 18 of institute X and 14 of institute Y. This amounts to a retention rate of 80 %, which is considered normal for effective evaluation of public health interventions (Amico, 2009). The average age of the bachelor students was 20 years old (SD: 1.15) of the participants 56% was male and 46% female.

Table 1. Demographics

	Institute X	Institute Y
Mean age (SD)	19.72 (1.18)	20.38 (1.04)
Male	19.87	20.75
Female	19.50	20.31
Number of male participants	12	7
Number of female participants	6	8

3.2 Measures

For this study we used a mixed-methods approach. First, all students completed the original Perceived Stress Scale (PSS), which is a validated psychological instrument developed by Sheldon Cohen and colleagues (Cohen, Kamarck, & Mermelstein, 1983). It is internationally used to measure people's perception of their own stress levels and evaluates the degree to which situations in one's life are appraised as stressful. It also questions to what extent people feel that they are capable of handling stressful situations. Items assess the degree to which participants feel they experience certain thoughts or feelings on a 5-point Likert scale, ranging from (0) "never", to (3) "sometimes" to (5) "very often". The potential range of outcome on the PSS varies from 1 to 40. Although the scale is not meant for diagnosing stress in participants, approximate mark off points for low, moderate and high stress are suggested (Cohen et al., 1983). Scores between 1 and 13 are considered low stress, between 14 to 26 to moderate stress, and scores of more than 26 points are associated with high stress.

The PSS scale was combined with qualitative methods. During the introduction session an open questionnaire was used to allow students to write out personal situations that were causing stress, in order to explore the source of stress and the types of issues the students were experiencing. Both the open questionnaires and the PSS scales were filled in before- and directly after the last session, as well as in the eight-months follow up.

Documentation was used as a method to carefully observe and reflect upon the experiences of students during the program. Two volunteers from the NGO team were present at each session to make notes about participative attitude of students, their mood and enthusiasm, and other group dynamics. After each session, the team that delivered and documented the program, debriefed to discuss what elements went well, what the challenges were, and what could be learned from these challenges.

Finally, after the intervention, we reflected with students on their experiences. Open questionnaires were sent to all students in which they could reflect on their experiences with the program; whether it was helpful for them, which elements of the program were most useful and which elements were less beneficial, how they were using the lessons they learned, how the program could be improved, and if they would recommend the program to other students. Similarly, the university management was asked to reflect on their experiences with the program. These reflections were used to study concepts related to the feasibility (*program acceptability and practicability*) and appropriateness (*cultural and contextual fit*) of the program (Booth et al., 2015). For this we asked questions related to how both students and staff experienced the program in terms of *planning, use of conducive space, length of the program, appropriateness and relevance of the program and exercises, connection with the facilitators and communication methods*, throughout several stages of the program.

3.3 Procedures

Participants at the two institutes attended the program sessions after university classes for three sequential weeks. The three sessions all lasted 2 hours. In collaboration with the management of the institutes, it was decided that students could follow this course at the beginning of the semester during the time for non-academic activities. The sessions were led by a professional psychologist, who administered and explained the exercises, as well as a trained research assistant and 2 volunteering assistants from the NGO. The intervention was facilitated in English, which was well understood by all students. The intervention space was conducive for physical activities, such as drama, dance, ice-breakers as well as individual exercises. Tables could be easily placed and removed when writing or reading was required. Questionnaires were administered before in a separate introductory session, for 110 students. After that, only those students who wanted to participate in the Stress Management workshops followed the program and were administered with a questionnaire right after the program ended as well as eight months later. Students were explained that their responses were processed anonymously and they had the right to quit their participation at any point of time during the program.

3.4 Data Analysis

PSS scores: The analysis was done through IBM SPSS 21. The total stress scores were normally distributed with Z values for Skewness and Kurtosis respectively before the intervention (0,0265/-0,933) and after the intervention (0,96/-0,45). The means of the total perceived stress scores before and after the intervention were compared using a paired samples t -test. A p -value below 0.05 was considered significant. Follow-up tests were used to evaluate the development in the student's PSS scores.

To look for possible effect modifiers, the differences in PSS scores between males and females, as well as between institutes were evaluated using independent samples t -tests to see if there were any significant differences in outcomes between these groups.

Open questionnaires and qualitative feedback: The responses to the open questionnaires about causes of stress were digitized and independently coded by two researchers to interpret the reason for the students' distress. Before and after the intervention, questionnaires were compared to evaluate the overlap and gaps. Furthermore, we took note of whether some stressors were mentioned less after the intervention. Emerging codes were compared and one list of codes was constructed and used to evaluate the data again.

Open questionnaires administered to students and school-management, as well as the documentation notes were coded independently to abstract emerging themes and common responses with regards to the efficiency, acceptability and overall experience of the program.

4. Results

In this section the results are displayed. In the first part of the results, the objective regarding the feasibility and appropriateness of the University-Based Stress Management Program in two institutes in Pune is described. In the second part, the impact of the program on Perceived Stress scores of the participants is evaluated.

4.1 Feasibility

Student acceptance and program practicability: Both from the field notes as well as the post-interviews it appeared that students were eager and enthusiastic to participate in the program. This first had to do with the urgency of the problem and how this was experienced by most students. Stress and anxiety were very much felt by most participants. This is illustrated by a student from Institute Y, who mentioned that "*it is so important to have such programs, because engineering students like us are very stressed, and this program was needed to give me some ideas on how to handle this*". Another student came up to the facilitators after the first session and expressed how she wanted to emphasize how much this program meant to her and how happy she was that something like this was available. Another student from Institute X, said: "*I thought the program was very needed, because in this era of high stress it is very relevant to find stress busters*". The majority of students reported that they would recommend the program to their peers or friends as they see that they are tensed about life events as well. Some students also took the availability of the program as an opportunity to express their need for more personal support, which could be provided right away by the NGO, indicating the relevance of such interventions in Universities to stimulate help-seeking.

This program started off as a universal program, accessible to any student who was interested in participating. However, when comparing the PSS scores of those who completed the whole program ($N = 33$), with those students who were only there at the introduction ($N = 76$), a difference in their average PSS scores was found,

perhaps indicating a larger intervention urgency in the participants. Average PSS-scores of non-participants was $M = 17.94$, which was 1.572 points lower than the average PSS-scores of participants ($M = 20.16$). This difference was insignificant ($p: 177 > 0.05$), yet noteworthy.

With respect to intervention attendance for the students that remained after the introductory session, 9 students dropped out during the program (5 at institute X, and 4 at institute Y), leaving 33 students to complete 100% of the program at both institutes, which is an attrition rate of 21 percent. We understood that this had to do mostly with inconvenience of certain timings, and sometimes lack of adequate communication from the institute management on the timings and locations of the next sessions. In general, the staff members and the volunteers in the program experienced some difficulties in assuring that every student was aware on the presence of the program and the fact that it was freely accessible, despite the call and the introductory session.

4.2 Appropriateness

In the post-interviews we asked students to reflect on their experiences, right after the program, but also eight months later. First, we will reflect upon the core elements of the program, as to whether they were experienced as useful and appropriate by students, such as poetry, drama and play, self-connection, and EFT (Figure 1). Specific lessons the students took from the program and in what ways this has helped them in managing their stress, will also be described. Finally, how the school management reflected on the appropriateness of the program is shared.

Overall responses showed that students experienced the program as interesting, fun and helpful in managing their daily hassles. For some students, this meant that the program, firstly, was a welcoming break from their usual way of dealing with academic matters and the communication with each other, as well as, for some students, a first introduction to self-introspection. Three students commented, for instance:

“This was just awesome, I think every student enjoyed it, it was nice that for once there were no boring sessions or lectures, but there were games and there was space to express our feelings. It was just three hours to keep me away from stress. I found it very interesting and enjoyed every second of it”. (Male student, institute Y)

“I felt so lucky to be part of this. I gained awareness about myself and how I usually cope with stress. Every session left us with a thought to ponder upon”. (Female student, institute Y)

“I enjoyed the drama elements of the program. I went back to my childhood”. (Female student, institute X)

The volunteers of the team also noticed a change in attitude of students during the program. We saw that for some students, at first, it was difficult to release the notion that they were required to follow certain regulations, which could potentially lead to grades or corrections. Here, the playful exercises helped them to abandon this academically induced rigidity of the settings they were in. One volunteer reported:

“The students started off being hesitant, and more ready to obey or follow, as they are taught to do so in usual classes. They barely dared to move and stood in straight lines! But after some time, and the first warm-up exercises, the students opened up, and seemed to enjoy first of all the ability to play. They were highly engaged and there was space for laughter”.

With regard to the elements of the program that students enjoyed most, we asked the students to share whether they felt separate exercises or sessions were useful or not, based on a 4-point Likert scale ranging from “disagree” to “strongly agree”. The elements that were used in the questionnaire were derived from earlier recollections of the students on what they considered important elements of the program. In Figure 1 the responses of students are visually displayed.

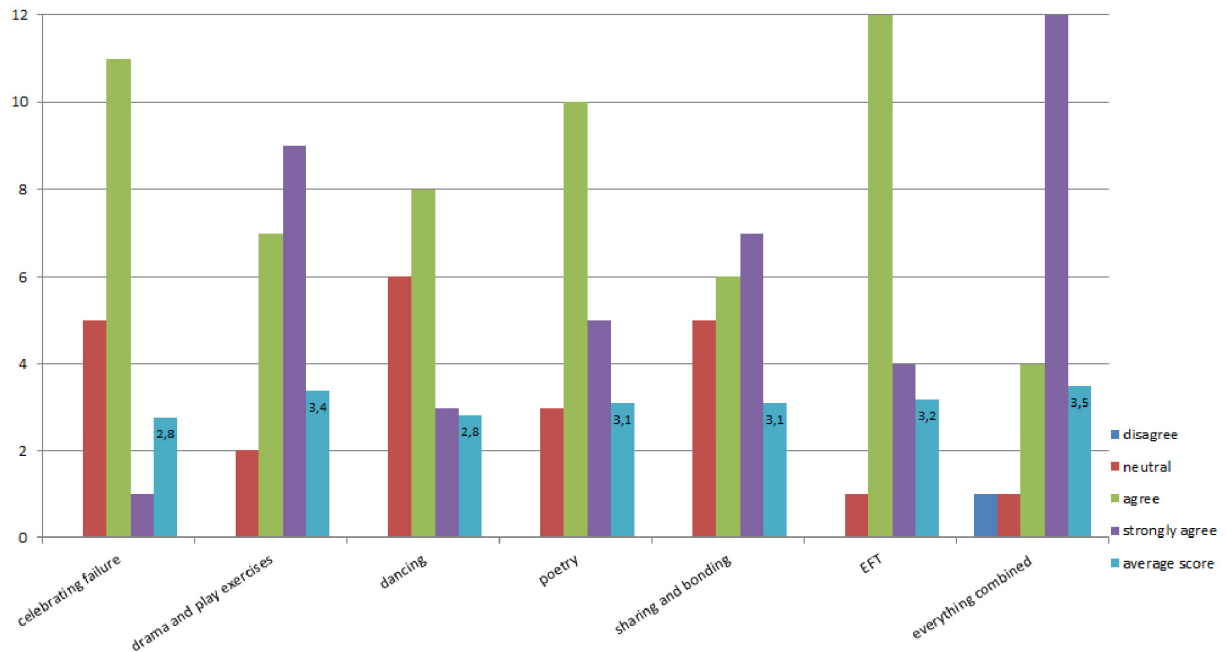


Figure 1. Evaluation of core-elements according to students

“Celebrating failure” was the theme of the first session, in which elements of drama and play, as well as REBT were used to reflect upon the idea of failure and the fear of failure. We celebrated how certain mistakes in life could lead to creative ideas or important lessons and we practiced with overcoming fear by dramatic exercises. Students who wanted to could share their stories of mistakes in the group, while the group would supportively celebrate their experiences, regardless of the element of failure in it. Students showed enthusiasm in this, and shared stories related to their academics, love issues, peer-relations as well as occasionally more serious issues, such as crime and violence. In the figure we see that students find this a moderately important element, and play and drama relatively more important. Qualitative feedback of students suggests that they derived valuable learning from this. Students mentioned for instance:

“The reason for my stress was exams. I had a phobia for results. It was very difficult for me to cope with them. I used to sleep for hours and hours so that I could never think of them. But this wasn’t a solution that worked for me. After the session, I am able to cope with them more, to deal with the idea that results are also just a momentous reflection and not a definition of me”. (Male student, Institute X)

“The program helped me cope with my stress in several ways. For one, it was helpful for building up my confidence, overcoming internal fears, to stand alone in front of people fearlessly”. (female student, institute Y)

“I felt this helped me in overcoming fear. I found creative alternative ways of looking at this and this relieved my stress”. (Male student, institute Y)

Playful exercises, such as drama exercises, dancing activities and ice-breakers were observed to work well in the program. Through these exercises students were able to let go of their usual routine, and to become more engaged. We saw that it became easier for students to express difficult emotions when they were alternated with expressions of laughter and humour. Volunteers noted that these dynamics between laughter and serious topics worked well to stimulate learning in students.

Another important element in the program was poetry. Both the students and the volunteering team reflected upon this as a very powerful experience. Students were introduced with the idea of poetry by briefly discussing the value of poetry and what poetry contains. We particularly looked at poems from contemporary authors, such as Charles Bukowski, who display less stylistic regulations and therefore more freedom of expression. We discussed the poems in the group and what the author meant to express through these means. Then the students were invited to express their own emotions freely in the space of 15 minutes on a piece of paper. The time was deliberately limited in order to reduce the probability of critical reflection on their own work. This exercise resulted in beautiful poems, in which students reflected on various topics in their lives, such as relationships with

their parents, academic pressures, insecurities, love, personal losses, the context of India, hopes of the future, and religion. The sense of pride and surprise the students found in the poetry was experienced as highly stimulating for most students. It was interesting to see for instance that a majority of students, including those who were generally more shy, wanted to share their poems with the group. Examples of such poems, each written by one female student and one male student are provided in the two boxes below, which reveal the depth of meaning in the writer's expressions.

Box X: poem by a female student, 17-07-2014

*In the lonely earth and the beautiful sky
I am just alone, and I'm too shy*

*I walk ahead, but return with a good bye
who am I, why am i.?before realizing it, I can't
die*

*Creatures cry, as it nowadays rain's dry
greenery is nearby, but where's the human
who was the holy guy*

*Barks in dark, scary life in hearts
still the negligence won't bombard*

*Trees for animals are shivering and suffering
searching for heaven in barren earth and
beautiful sky*

*Selfishness sells the fishes
new-borns to come, lives to live
Families cry, but we die as we can't fly*

*Oh God, take me anywhere
but I can't stay in here*

Box X: poem by a male student, 17-07-2014

*Around the corner.. I have a friend
in this great city that has no end..*

*The days go by and weeks rush on
and before I know it, a year is gone
I never see my old friend's face*

Again a life is shifted into a terrible race

Tomorrow comes and tomorrow goes

But the distance between us

stays

Reflection of the students during the course of this exercise showed furthermore that students enjoyed this way of expressing themselves. Students reflected:

"I remember the poems that we were encouraged to write. It was the only way I could ever express my emotions and what was in my mind". (Male student, institute X)

"This program has helped me in various ways. For one, I discovered a poet in myself. So at times I write a poem now, and feel happy about myself". (Male student, institute X)

"It helped me to voice my feelings in front of an audience and that helped me to feel good for days after the program was over". (Female student, institute Y)

The element of sharing and bonding was rated relatively high, and also mentioned as an important factor during the program. For many students, the program helped them realize that some of the issues they were facing were shared by others, and that this commonality and sharing with others could be a way of coping with the stress. One student reflected:

“This session brought us together. We worked on it together as a team. The facilitators who guided us during the sessions never discriminated between people but stimulated us to come together. This program didn’t work just for girls or for boys, for instance, it worked for US”. (Male student, institute Y).

Relaxation tools that were administered during the program, such as small meditation exercises before and after each session, as well as EFT were evaluated as helpful. During the program, some students would ask for additional information on EFT and how to administer it for different problems, after which they shared they thought it was useful for them. A male student mentioned about this: *“I thought the various techniques for relaxation and processing emotions was useful and it helped me to gain more mental stability”*. Students also reflected that, although the causes of stress were not eliminated, they found more tools to handle them. This was illustrated by two students who mentioned:

“I have improved a great deal at coping with stress. There are times when I break down and things seem utterly hopeless, but for the most part, I have changed my approach towards these situations and have learned to deal with them a bit more calmly as opposed to being flustered and reckless”. (Female student, institute X)

“I particularly remember the line we were taught to use: ‘Even though ... I still deeply & completely love, accept and forgive myself’. This helped me a lot”. (Female student, institute X)

Finally, students were also asked what elements they did not like or what they would like to see improved. A majority of students thought the program was too short and should last longer. Some students reflected that theoretical explanations (for instance, on REBT) were less useful, indicating that some students prefer the more implicit, practical way of learning certain ideas. However, the group was somewhat divided on this, as some students enjoyed the theoretical background and suggested it could even be increased. Finally, staff members reported that the playful character of the program was something which could only be brought into the university from outside. According to a female staff member from the management board: *“It is wonderful to see how the students are encouraged to dance, express and even to see how both girls and boys can interact with each other. This is truly working wonders and we see that it works well actually. However, it is difficult to even imagine us doing similar things with the students, because we would lose our face in front of the students, which cannot happen”*.

4.3 Perceived Stress

For the second aim, we compared post-intervention PSS scores with the average PSS scores of participating students before the intervention. Because the scores of the institutes together were distributed normally at both test points, the final model shows the difference between the pre-intervention and post-intervention PSS scores for the entire study-population. The researchers had to eliminate one respondent from the study, as his PSS scales were not filled in completely, leaving a study population of $n = 32$ students. The pre-test internal reliability in this study was $\alpha = 0,735$. At baseline 12.5% of the students fell in the category of low stress, 62.5% in the category of moderate stress, and 25 % of the students had scores related to high stress. After the intervention, a considerably larger number of students had scores associated to low stress, accumulating to 30.3% for this category, while 54.5% were associated to moderate stress and 15.2% to high stress (Table 2).

Table 2. Student’s average PSS scores divided in categories of low, moderate and high stress

	Low Stress (1-13)	Moderate stress (14-26)	High stress (26-40)
Pre-intervention	12.5%	62.5%	25%
Post-intervention	30.3%	54.5%	15.2%

As displayed in Table 2, a significant difference is found between the PSS scores before and after the intervention ($M = 17.55$, $SD = 6.5$, $t(2,097)$, $p = 0.04$), which reflects a moderate effect size, with $r = 0.4 > 0.3$. The average score dropped from $M = 20.16$ to $M = 17.55$, which is a difference of 2.61 points (Table 3).

Table 3. PSS scores: perceived Stress Scale

	<i>M (SD)</i>	<i>p</i> -value
Pre-intervention	20.16(5.9)	
Post- intervention	17.55(6.5)	.044 *

* significant at the $p < .05$ level

Furthermore, we see some differences in terms of stress reduction between the two institutes (Figure 2). Institute X started off with higher stress scores and reduced in stress relatively more than institute Y with -3.75 points versus -1.66 points respectively (however not significant with $p = .145 > 0.05$). Between males and females there are also differences observed with regards to their PSS scores (Figure 3). In general, females started off with significantly more self-reported stress than males, with PSS scores of $M = 21.06$ versus average PSS scores of $M = 19.06$ for the male participants ($p = .029 < 0.05$). This is a relevant finding to consider in further impact studies around this program, but we will not elaborate on this for this pilot study.

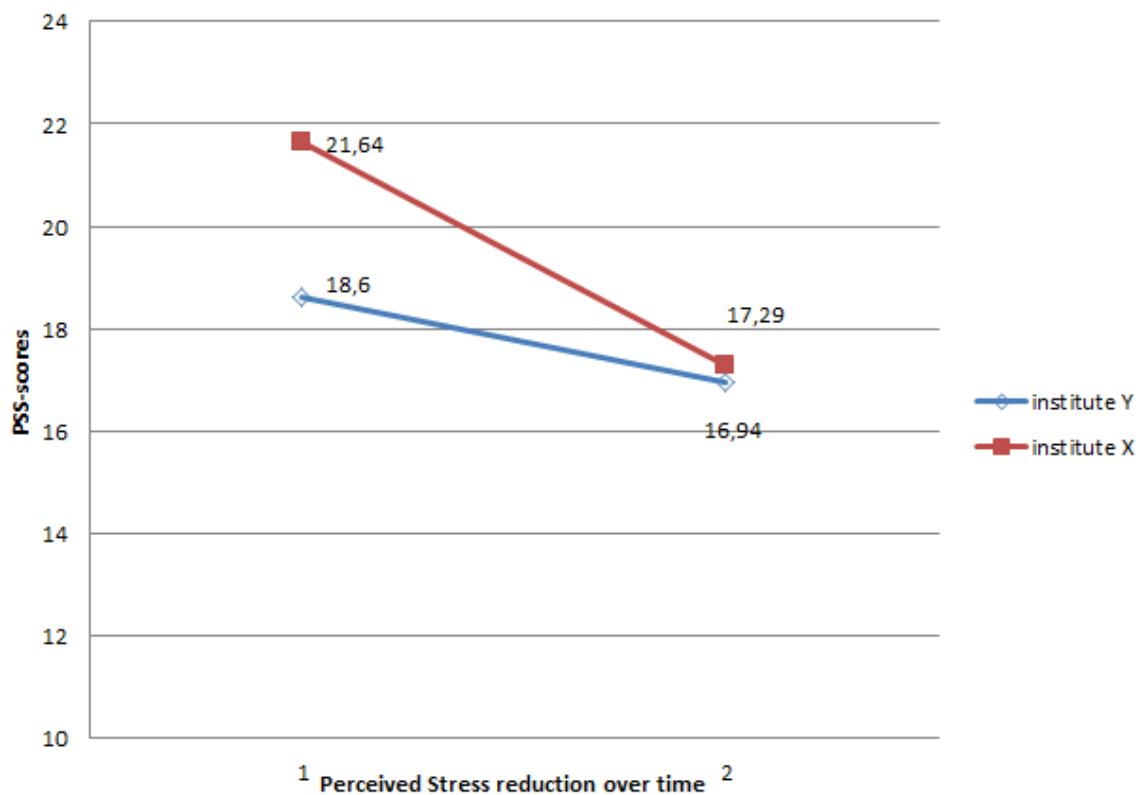


Figure 2. Average PSS scores according to differences between the two institutes

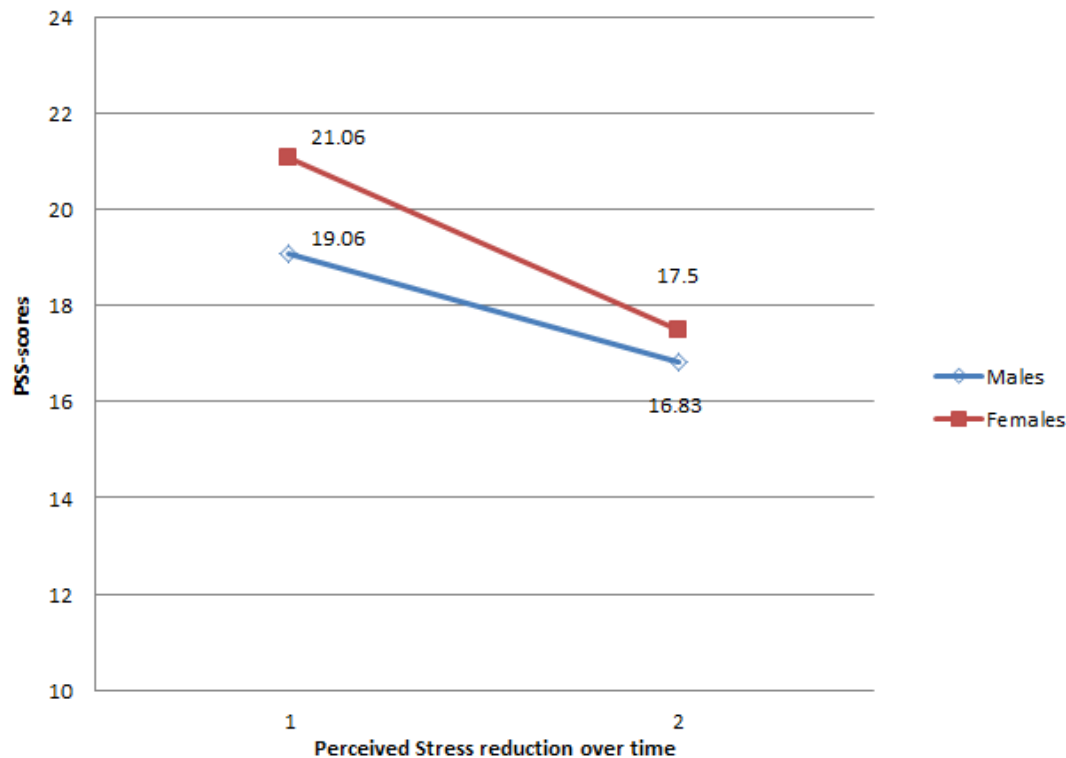


Figure 3. Average PSS scores according to gender differences

Finally, we were interested in whether the PSS scores would change over time. Follow-up measurements were conducted eight months after the program had ended. Unfortunately, the sample size was now reduced to 21 students, as many had left for internships during the time of post-measurement. The data was still normally distributed with Skewness and Kurtosis values of .127 & .771 respectively. The average PSS scores at follow-up were two points lower than those at baseline but higher than right after the intervention (M (at follow-up) = 18). There was no significant reduction detected anymore in comparison to the average scores at baseline ($t(1.3)$, $p = .206$). This shows that the effect of the program on the perceived stress levels of students was not contained over the course of the 8 months after the intervention ended.

5. Discussion

This was a pilot-study to evaluate the feasibility, appropriateness and impact of a university-based program to reduce stress and improve mental well-being in a non-clinical student population. To our knowledge, this is the first university-based programs to be implemented and recorded in urban university settings in India. Overall, this study suggests that a research-based response to the specific needs of a student population is feasible to implement and likely to be beneficial to students. Our results further suggest that university-based programs that aim to reduce stress are likely to benefit from methods derived from Rational Emotive Behavior Therapy (REBT) to encourage positive self-reflection in students, as well as relaxation and emotional processing methods such as Emotional Freedom Technique (EFT) to teach students self-healing. This study did not inquire whether students were still using EFT in their daily lives, but found that several students reported on EFT as a useful skill that they learned to reduce their stress levels. This relates to a study conducted by Church, de Asis and Brooks (2012), with 38 college students dealing with depression. After EFT the students were significantly less depressed in comparison to a control group (Church et al., 2012). A different study by Church, Yount and Brooks (2012) found psychological distress symptoms to be significantly reduced through a one-hour EFT intervention, indicating that EFT can be a cost-effective method to help people process their emotions.

These research-based methods were combined with exercises to encourage self-esteem and expression in students, such as drama, dance and poetry. Our findings suggest that these exercises are vital elements to include for various reasons. First, it increased the enthusiasm of students. The students also felt more comfortable to

share and playful exercises stimulated a sense of group-bonding. It was also considered an important break from the overall seriousness often associated with university-level learning. These effects are also described in Vygotskian sociocultural theory, where playfulness is considered to be an important mediator for learning, as it facilitates “zones of proximal development”. In such zones, where people “act beyond their general behavior”, learning is more likely to occur (Sullivan, 2000, p. 123). Playfulness has therefore often been used in therapy settings to enhance self-awareness through expression, universality, feedback and self-discovery in the therapeutic process (Adelman & Castricone, 1986). We see that this worked particularly well in the setting of this study, because the university setting in India does hardly allow for spontaneity or creativity in the learning process (Froumin, Divakaran, Tan, & Savchenko, 2007).

The researchers were furthermore surprised by the intricate power of poetry, which not only helped to stimulate self-expression, but also worked through in the self-reported self-esteem of students and the overall dynamics of the group. Particularly female students who were relatively shy and insecure throughout the program, were eager to recite their poems, thereby sharing relatively personal statements. Carroll (2005) describes this phenomenon in his paper on the healing power of poetry, particularly for cancer patients in the US, as *finding the words to articulate a traumatic experience can bring relief* (Carroll, 2005, p. 161). We see that poetry provides a sense of safety in people, which allows them to express personal experiences.

For our second objective we looked at the perceived stress of students before and after the intervention, and found a significant decrease of stress, right after the program ($M = 17.55$, $SD = 6.5$, $t(2,097)$, $p = 0.04$). This means that, based on these measures, overall, the intervention was of use for students. There is no official cut-off point in the PSS to indicate when people are at risk for developing more severe mental health problems. However, averages of 20 points are usually considered moderately high (Cohen, 1983). We saw that the intervention led to considerable improvements, with more students scoring less than 13 points on the PSS during post-measurements (30.3% compared to 12.5% at baseline measurements). Also, less students had scores that fell in the category of high stress after the intervention (15.2% compared to 25% at baseline). For many students, their perceived stress score was brought down significantly, which might make an important difference with regard to how healthy these students feel. The overall results were furthermore more robust for female students and for students at the first institute as they started off with higher PSS-scores at baseline (however, not significant) and showed therefore a relatively greater effect of the intervention. We also saw that students from the first institute show higher PSS-scores and also relatively more stressors at baseline. This is in line with what we regularly hear from students who have studied Engineering before taking up Management in India, that the study of Management is a more competitive, demanding and therefore stressful field. It would be interesting to explore how the setting of the students in different universities influence their experiences with stress. We would assume that factors such as fee structures, quality of education, proximity to the university and uncertainties regarding future job prospects per study field impact student's experiences (Gupta, 2008), which is something to consider in further research (Heckman, Lim, & Montalto, 2014).

The follow-up measures show that the stress reduction was not maintained significantly, although average scores were still considerably lower than at baseline. This is a common phenomenon with such short interventions and could be related to the fact that the triggers for stress are changeable and not eliminated. It would therefore be advisable to conduct an extra booster activity several months after the program, to refresh certain lessons learned (Barry, Clarke, Jenkins, & Patel, 2013). It also shows again the importance of integrating certain elements of the program in the continuous curriculum of the university, such as space for creativity and self-expression. Nevertheless, the students of the program were now introduced to the fact that they were not alone in experiencing problems and there was always support (gatekeepers) available. These, as well as positive memories people have from former “supporting” events, are important concepts in preventing someone from committing suicide when they are feeling desperate (Wilson & Deane, 2001).

5.1 Limitations and Suggestions

There were several limitations to this pilot study. Due to the small number of participants we were not able to perform more rigorous tests to evaluate confounding effects due to characteristics such as gender, and university setting, that are likely to bias the intervention outcomes. Limitations in the research field, with regards to resources and time, also prevented us from including other interesting background information on the students, which would have strengthened our analysis, such as Social Economic Status (SES) or religious backgrounds of students and time-tables of students including exam periods. In this study, theoretically related items were also not assessed quantitatively yet, such as overall well-being of students or academic functioning of students.

Nonetheless, we consider this pilot study to be a valuable start in evaluating the feasibility of rolling out such a new intervention in India, while gaining preliminary insights on the potential benefits regarding stress in students. In subsequent studies with similar populations, effectiveness could be determined more accurately by including a control group.

Based on this study, we propose several improvements for the program. First, our study shows that many stressors experienced by students are academically related and could be combatted concurrently with the management of the universities. Although this program provides some relief for students and tools for students to handle their stress, it would be more sustainable if certain low-threshold and accessible elements of the program could be discussed and integrated in the curriculum and the overall academic system of the universities. This would entail perhaps certain reforms in areas such as the public comparison of student grades. Although some of the academic rigidities in the Indian school systems are regulated through national agreements, university managements could think about the message they would like to promote among the students with regard to concepts such as success, which could cause certain beliefs and subsequent stress in students. In the long run this could create a more healthy environment also for staff members, since they expressed that they experience high stress and pressure as well in the current system. Finally, we propose that in the future the program could encourage students to continue supporting each other over a longer course of time, for instance, through peer-education (Zachariah et al., in process). Similar activities could be used as in this program, but students can also be empowered to think of their own ways of addressing the issue of stress. This should still be supported by a team of experienced volunteers to maintain the connection with the professional field, but it starts with the premise that young people are capable of caring for each other. Peer-education, in itself, can induce important effects for mental wellbeing in people, such as self-care and leadership qualities (Zachariah et al., in process). This would be an important element to consider in further studies on this topic.

6. Conclusion

This study shows that a cost-effective, accessible mental health intervention at universities can be a good solution to respond to the growing need of young people in emerging countries such as India. In collaboration with community-based health organizations, dedicated professionals and school-managements, a large group of young healthy people can be supported in relieving stress and finding ways to handle life-tensions. Such programs can also help to increase help-seeking behavior in people with more severe problems. More research should be done to evaluate if such interventions work to prevent more severe mental health problems, such as suicidal behavior, in a population.

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