



Review Article

Positive Thinking Training Intervention for Nursing Students to Foster Resilience: Assessing Critical Parameters from Students' Perspectives

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Introduction

The COVID-19 pandemic impacted not only the physical but also the mental health of the American population. Anxiety and depression have increased three-fold since the pandemic [1]. The Centers for Disease Control and Prevention (CDC) 2021 survey revealed that approximately 33% of the American population have anxiety symptoms and 28% have depressive symptoms as compared to 11% and 4% of anxiety and depression respectively in 2019 [1]. Also, Research showed that the rate of suicidal ideations during the pandemic is higher than that reported prior to pandemic, suggesting that this may result in higher suicide rates in future [2]. Nursing students are faced with many challenges and anxiety and stress are common among nursing students [3,4]. Without a doubt, these challenges have been exacerbated during the pandemic [3,4]. Research shows that stronger resilience and humor were significantly associated with reduced anxiety [4]. Positive thinking is a cognitive process that helps people to develop optimistic ideas, find favorable solutions to problems, and produce an overall bright outlook on life. Positive thinking is a useful strategy for coping with adversity. Resilience and well-being can be enhanced through positive thinking training intervention [5].

The purpose of this pilot intervention study is to assess the six intervention parameters of the positive thinking training (PTT) intervention namely: the necessity, acceptability, feasibility,

fidelity, safety and beginning effectiveness among nursing students.

Methods

The IRB approved flyers were hung around campus with the contact information of the research assistants. In addition, an email was sent out to all nursing students during the Spring Semester with the contact information of the research assistants. Those who were interested contacted the research assistants and the research assistants provided them with a link to the pre survey and a code number (a key) to use to link the pre with the post surveys instead of providing their names in the surveys. The consent document was incorporated into the first page of the pre-intervention online survey which has the contact information of the researcher if participants would like to ask any questions. At an agreed upon date and time that is convenient for the group, the intervention was delivered online via TEAMS in 4 weeks (one and half hour / session/week) for 20 students. For consistency, the PI delivered the intervention sessions with the presence of the research assistants via TEAMS. The research assistants facilitated the discussion and recorded notes.

The PTT intervention

Grounded in cognitive-behavioral theory, the intervention skills reflect cognitive activities to increase positive thoughts and eliminate or modify negative ones. The acronym "THINKING"

was used to deliver the intervention [5]. In addition to using the acronym as a mnemonic strategy, chunking is also used as another mnemonic strategy [6]. Chunking refers to the common rule that a person can remember between five and nine things at one time. The word THINKING contains eight letters, which is a reasonable “chunk” of ideas for the participants to remember. The first week was an introduction to the PTT intervention and the acronym THINKING. Then the PTT intervention was delivered to participants as follow: Transform negative thoughts into positive thoughts; Highlight positive aspects of the situation (week 1); Interrupt pessimistic thoughts by relaxation techniques and/or distractions; Note the need to practice positive thinking (Week 2); Know how to break a problem into smaller part to be manageable; Initiate optimistic beliefs with each part of the problem (Week 3); Nurture ways to challenge pessimistic thoughts and Generate positive feelings by controlling negative thoughts (week 4) [5]. During the session, the eight positive thinking skills were discussed, and participants were encouraged to identify ways in which each of the skills might be applied within their individual situations. Reflection on their practice/use of the positive thinking skills served as a mechanism for reinforcing the positive thinking skills. Within one-week post intervention, post intervention measures were administered to participants.

Measures and Instruments

Evaluating the Intervention Parameters

The necessity of the PTT intervention was evaluated by asking the students if they thought they needed the intervention and if they thought that other students would benefit from the intervention [7,8]. Necessity was also determined by examining baseline scores on the Positive Thinking Skills scale; scores above 13 indicated less need for intervention [9].

Acceptability of the intervention was assessed by asking the students to describe what part or parts of the intervention were most, and least, interesting and whether they thought that the group format and intervention content were appropriate for them [7,8].

The feasibility of the intervention was evaluated by asking the students to describe what part or parts of the intervention were easiest, which were most challenging, and whether they thought that the number and length of the sessions were appropriate in terms of time commitment [7,8].

The fidelity of the intervention was assessed by asking the students whether they thought they learned all the skills constituting positive thinking and what might have helped to learn them better [7,8]. Fidelity also was assessed by examining scores on the Positive Thinking Scale since positive thinking scores would be expected to increase if the skills constituting positive thinking were taught effectively [7,8]. The safety of the group intervention was evaluated by asking students what part or parts of

the intervention were most, and least, distressing or uncomfortable and whether they had any concerns about confidentiality during the group interactions. The effectiveness of the positive thinking intervention was assessed by asking the students what part or parts of the intervention were most, and least, helpful in teaching them to cope with their stressors. They also were asked to describe ways in which the intervention might be improved.

Participants completed the demographics, the perceived health status, and the positive thinking skills survey through Qualtrics immediately before the intervention. within a week after the 4-week intervention program, they completed the intervention parameters questions and the Positive Thinking Skills Scale.

Demographic information was collected from study participants that includes age, gender, college level, and current marital status. Perceived Health Status was measured by a single item index based on a 4-point Likert-type scale ranging from 1 (poor) to 4 (excellent), in which participants recorded their perception of their health. This index has been used in previous studies and is accepted as a valid indicator of the subjective appraisal of health status [10]. Higher scores indicate better health.

The Positive Thinking Skills Scale (PTSS) was used to measure positive thinking. The PTSS is an 8-item scale with scores ranging from 0 to 3 (0 = never use the skill, 3 = always use the skill), with overall scale scores ranging from 0 to 24 and higher scores indicating higher levels of positive thinking skill use. Reliability for this tool has been determined with Cronbach's alpha of 0.89 to 0.90. Validity has been demonstrated by significant correlations with positive cognitions, resourcefulness, depression, and wellbeing [5]. A cut off score of 13 is a point at which referral, intervention, or treatment would be recommended [9]. Cronbach's Alpha in this study was .83

Data analysis

The data obtained post intervention with students were transcribed and themes were identified. Two researchers ensured the credibility of the data by independent coding with a percentage agreement that exceeded 95% [8,11]. Also, the use of quotations increased the credibility and truthfulness of the research. Saturation was achieved as there was redundancy and as no new themes arose [12].

Results

Twenty students attended the intervention program. Sixteen students were females (80%) and four were males (20%). Seventeen were Caucasian (85%), two were Hispanics (10%), and one was Asian (5%). Fifty five percent were graduate students (n = 11), Fifteen percent were freshmen (n = 3), fifteen percent (n = 3) were sophomores, 10% (n = 2) were Juniors and one student was senior (5%). Sixty percent described their health as good (n

= 12), 20% described their health as excellent (n=4), 15% (n=3) described their health as fair, and two percent as poor (n= 1). 50% (n = 10) were between the age of 18 to 22 years of age and 50% (n = 10) were 24 years and older. 95% were single (n = 19) and 5% (n =1) were married.

Evaluation of the six intervention parameters

The necessity parameter

Necessity Baseline positive thinking scale scores were examined to indicate level of need for PTT; students who completed the PTT were later asked about their perceived need and the need of others like them for PTT. Baseline positive thinking scores were normally distributed with 60% (n = 12) of the students scoring under 13, indicating a strong need for PTT [9].

The necessity parameter refers to nursing students' beliefs that they and other nursing students need positive thinking training intervention [13]. It is important to assess the necessity parameter from nursing students' perspectives as previous research showed a variation, in some cases, between the perspectives of care providers (the researchers) and care recipients (nursing students) [14]. Twenty students evaluated the need for a Positive Thinking Training Intervention. Sixteen indicated that they needed the PT intervention to help them think positively, to control negative thoughts, and to help them manage different life and school stressors. Examples of the participants' responses included "Yes, it taught me new ways to think more positively about myself when I am stressed out, "Yes, it reminded me of how important it is, so [I] try and think positively in every situation to have more control over my own life", and "Absolutely, I tend to have negative thoughts especially in relation to school, and I thought it would be a good way to learn how to incorporate tips into my life that would help me live a more positive one." Three students indicated that they did not need the intervention as they are already using different coping mechanisms because life has exposed them to many adverse situations. However, they indicated that the program might reinforce prior learning. Examples of the participants' responses included "No, I have experienced a lot of adversity in my life and already have many coping mechanisms. I do not feel like I gleaned new skills from this, but maybe I am wrong, and it reinforced prior learnings", and "Honestly, I felt that I had a pretty positive outlook or way of thinking before this due to various life experience that I have had.". One participant stated "Maybe not needed but it was a positive force."

Eighteen out of the twenty participants believed that other nursing students need the Positive Thinking Training Intervention. One participant indicated "Yes because it can give them insight on how to improve their life in many unique ways" Another participant shared her experience saying "Yes, we tend to get stuck in routines. Sometimes your default is to just think negatively, this

can be very damaging in the long run." Two participants shared their points of view stating, "Yes because as a nursing student we all tend to feel stressed and sometimes doubt ourselves and this training would help with that", and "Yes- we see a lot of heart wrenching things and it's important to know how to cope with them in a healthy manner". Two participants stated that they are not sure because people are different so some may benefit from it, yet others might not like it. One participant stated "Yes and no. Some students may like it, and some may not feel the need." Another participant commented "I don't know really; we are all so different that I think it would be hard to generalize for everyone. I would say maybe some people might benefit, but only if they go into it with an open mind and with the intention to follow through on the training."

The acceptability parameter

When asked what part of the PT intervention was most interesting for nursing students, 25% (n = 5) of the intervention group (n = 20) mentioned "listening to the experiences and stories of how others integrate positive thinking" One participant stated that the most interesting part of the PT intervention was, "Hearing how other people integrated positive thinking into their lives." Other participants said, "I loved the examples that other students gave about their personal lives in the meetings," "Going over personal stories," and "Hearing different ideas to change my thinking", and "It was nice to hear from other members because some of their feedback allowed me to recall things that had happened to me in the past." Another quarter of participants stated that learning how to transform negative thoughts into positive ones was fascinating. One student said "Transforming my thoughts. It is the first concept and I really need to do this one the most. I get caught up in so much negativity sometimes.....I just need to do this." Another student stated "I think the reinforcement part where you recognize you are having a negative thought and helping recognize the negative and help shoot it down and turn it around into a positive one". Three participants mentioned that relaxation techniques were the most interesting part of the intervention. One participant stated, "I really felt like the part about relaxation techniques because that is what I've used for a long time to handle stress mostly running and other forms of exercise." Another participant stated, "The use of relaxation techniques like meditation." Two participants mentioned that the acronym used was the most interesting part of the intervention. One participant stated, "The acronym used in order to help me remember how to practice positive thinking." The rest of participants mentioned specific skills that they learned were the most interesting such as "I thought the breathing technique videos were very interesting" and, "I think the best parts were the skills we learned".

When asked students what part or parts of the Positive Thinking Training Intervention were least interesting, 65% (n =

13) of the intervention group (n = 20) mentioned that it was all interesting and none of the parts were least interesting. Examples of students' responses are "none of the parts were least interesting", "I liked most of the training, I couldn't pick out one thing I didn't think was interesting", and "there really wasn't a part I found least interesting; I found each one helpful in their own ways." Two participants named specific skills that were not interesting to them. One participant stated "I did not find the meditation interesting only because I had previously learned about it before. I still love meditation videos though!" The other participant just answered the question by saying "positive thinking", so it was not clear what exactly she did not like. Other participants mentioned some aspects that were least interesting to them such as the virtual meeting, lack of participation, confiding/connecting to others, the length of the meeting, and sometimes feeling far behind. One student stated, "there were aspects that I do not find helpful for my own positive thinking practice like confiding/connecting with others with similar experiences- this normally gets me in a cycle of negativity." Another student said, "I personally feel that the virtual setting isn't as conducive to discussion or maintaining my own interest."

The Feasibility parameter

When students were asked what part(s) of the Positive Thinking Training Intervention was the easiest, three students mentioned that Relaxation techniques were the easiest. Six participants mentioned that listening to, joining the sessions, and sharing examples were the easiest. Other participants indicated specific techniques such as breaking the problems into smaller parts (2 participants), identifying, and interrupting negative thoughts (5 participants). Others mentioned "relating to others" and "all of it". When participants asked about the most challenging aspects of the PTTI, eight participants indicated that transforming negative thoughts into positive ones was the most challenging. Four participants indicated that incorporating the strategies and applying them to life was the most challenging. Four participants indicated that reflection on their thoughts, thinking of ideas, and speaking up was the most challenging. One participant indicated that attendance was a challenge and another participant indicated that "none" was challenging. Also, participants were asked whether that the number and length of the sessions were appropriate in terms of time commitment, 17 participants (n=20) said yes. Examples of participants responses are "Yes, I thought it was a perfect amount of time", and "Yes I do it was a good time to get information in and allow people to talk". On the other hand, one participant indicated "they were a bit long", while two other participants indicated that they wish the sessions were longer as follow: "I do think that longer sessions that were more focused would have been more useful. I also think that more sessions would be better-I found it hard to do virtually" and "Could have been a little longer."

The fidelity parameter

Eighty five percent of participants (17 participants) indicated that they were able to learn all parts of the program. Three participants indicated that they did not learn all of it. Their responses included "Not all because I did miss one session", "somewhat", and "most". The fidelity parameter was also tested by examining the scores on the Positive Thinking Scale since positive thinking scores would be expected to increase if the skills constituting positive thinking were taught effectively. A paired samples t-test showed that the participants' positive thinking skills scores increased from pre-intervention (M =12.9, SD =4.4) to post intervention (M =16.7, SD = 4.0; $t(19) = 5.05, p < .001$).

The effectiveness parameter

To assess the effectiveness parameters, participants were asked "What would have helped you to learn it better?" Eight participants indicated nothing more was needed. Examples are "Nothing, it was good that it was online, so it was easy for people who live off campus", and "I think it was a good format for effective learning". Four participants indicated that more and longer sessions would have helped them to learn it better. Two participants indicated that they would prefer the in-person sessions. Other participants indicated that a more interactive course with role playing, and video would be helpful. Examples of participants responses are "Possibly some role playing during the sessions. Invitations to share examples was great but perhaps role playing and following up afterwards would be beneficial" and "Maybe a little bit more interactive course would have helped me learn it better."

Participants were asked to indicate one or more situations in which they were able to use positive thinking skills. Participants shared many applications of the positive thinking skills taught during the program including, transforming negative thoughts into positive thoughts, interrupting pessimistic thoughts by relaxation techniques and/or distractions, breaking the problem into smaller part to be manageable and generating positive feelings by controlling negative thoughts. The following are examples participants shared with the researchers. One participant stated, "When I was swamped academically, I was able to break it down into smaller problems". Another participant said, "When starting to study for exams, I already have a mindset that I am going to do great". Another participant indicated "Right before an exam, I was having negative thoughts and was able to switch that around and recognize I know more than I think." Another participant was able to overcome stress by physical exercises and distraction. She said "I practiced more physical activity throughout the program which helped me keep a happier mindset. I also was able to reframe views of others with gave me a more positive view of them." Yet two participants were able to reframe the situation positively and they shared their experiences as follow: "When having a

negative thought about having to do something I don't want to do, but looking at the positive outcome it will have and changing my mind set about doing it." and "Before giving a presentation in one of my classes. I was able to stop myself from worrying about saying something wrong and looking like an idiot by changing my thoughts into one's about being more knowledgeable on the subject than others in the room, so they won't know if I said something incorrect." Also, another participant stated "I did not do as well as I had hoped on an Exam. Instead of being bogged down by negative thoughts, I decided to go on a walk. Doing that helped so much with making sure I was positive for the rest of the day. I was also able to look at the situation in a more positive light." Other participants indicated that they manage their stress by journaling, breathing exercises, and walking.

The safety parameter

The safety parameter was assessed by asking participants about the most and least distressing and uncomfortable part of the program. Eighty percent (n= 16) indicated that nothing was uncomfortable or distressing. Participants examples include "I found the entire program comfortable", "I never felt uncomfortable during the program", and "The way in which the information was conveyed, made it feel more personable and applicable to me as an individual instead of as a member or simple number in a group." Two participants indicated that sharing their personal experiences and being vulnerable was the most uncomfortable. One participant stated, "Uncomfortable to become aware of negative thoughts and the fact that you need help directing them". Another participant indicated that it was hard to think of examples to share. Participants were also asked if they have any concerns to share as a part of assessing the safety parameter. All participants, except two, indicated that they don't have any concerns. One participant indicated that "I feel like the massive change in weather that have occurred during this program could pose unreliable results because naturally people are happier with the warmer weather, longer days, and increase in sunlight exposure." The other participant indicated that "It was hard to understand the presenter at times, so could be helpful to have more than one person presenting."

Discussion

This pilot study is the first study to evaluate the six intervention parameters of a positive thinking training intervention designed to help nursing students to deal with their stressors and to foster resilience. The findings of this study support the six intervention parameters of the PTT intervention namely; the necessity, acceptability, feasibility, fidelity, safety, and beginning effectiveness as indicated by nursing students.

Future research should include a more interactive course with role playing and videos as recommended by the students' participants. Two students suggested that they would prefer sitting

in live classrooms where they can enjoy more interaction with other participants. Future research might consider participants' learning styles by giving them the option to choose from two intervention modalities: online versus in person and comparing the impact of both on participants' resilience. Limitations of the study include the use of convenience sample of nursing students who use the internet. consequently, the results can be generalizable only to nursing students who use the internet. Another limitation is that post-intervention data collection occurred within one-week post-intervention and nursing students might not have a long time to apply the positive thinking skills that they have learned. This, in fact, was expressed by some nursing students that they need time to apply what they have learned. Also, previous intervention studies on resourcefulness showed that effective outcomes started to emerge at six weeks following the intervention and, in some cases, emerge twelve weeks after the intervention [7,15,16,]. Future longitudinal studies might consider measuring the impact of positive thinking training intervention over time to gain perspectives on the effective time needed after the intervention.

Intervention parameters questions: [16,17]

- (1) Do you think that you needed the Positive Thinking Training Intervention? Explain why? (The necessity parameter).
- (2) Do you think that other nursing students need the Positive Thinking Training Intervention? Explain why? (The Necessity parameter).
- (3) What part or parts of the Positive Thinking Training Intervention were most interesting? (The Acceptability parameter).
- (4) What part or parts of the Positive Thinking Training Intervention were least interesting? (The Acceptability parameter).
- (5) What part(s) of the Positive Thinking Training Intervention was the easiest? (The Feasibility parameter).
- (6) What part(s) of the Positive Thinking Training Intervention was the most challenging? (The Feasibility parameter).
- (7) Do you think that the number and length of the sessions were appropriate in terms of time commitment? (The Feasibility parameter).
- (8) Were you able to learn all parts of the program? (The Fidelity parameter).
- (9) What would have helped you to learn it better? (The Effectiveness parameter).
- (10) What part (s) of the program were most and/ or least, distressing, or uncomfortable? (The Safety parameter).
- (11) Do you have any concerns that you would like to share? (The Safety parameter).

(12) Describe one or more situations in which they were able to use the positive thinking strategies (effectiveness parameter).

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