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The Creation and Testing of A Simulation-Based Workshop to Increase Level of Understanding and Empathy of Eating Disorders

Lyndsey E. Patterson*, Anna E. Boone, Jack R. Engsberg

Program in Occupational Therapy, Washington University in St. Louis School of Medicine, Missouri, USA

***Corresponding Author:** Lyndsey E. Patterson, Program in Occupational Therapy, Washington University in St. Louis School of Medicine, Missouri, USA, Tel: + 314-322-3495; E-mail: l.patterson@wustl.edu

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1. Abstract

Objective: The purpose of this investigation was to develop a simulation-based workshop for supporters of those with eating disorders. We hypothesized that the simulation would increase their level of understanding and empathy.

Method: Initially, an eating disorder simulation was created based upon the literature (ED Simulation 1.0), which included simulations for exercising, grocery shopping and eating a meal. Next, 16 people with clinically diagnosed eating disorders completed questionnaires. The information obtained was used to modify and improve ED Simulation 1.0 to create ED Simulation 2.0. ED Simulation 2.0 was then tested on 23 participants for its ability to increase levels of understanding and empathy, using the Toronto Empathy Questionnaire, Likert-scale items, and open-ended questions.

Results: The original simulation was modified, and both audio and video recordings were created for use in the workshop. Results of the use of the simulation with supporters of those with eating disorders indicated significant improvements in scores on the Toronto Empathy questionnaire (Z= -3.344, p=.001). Qualitative data also indicated benefits of the simulation and the recommendation to continue its usage among supporters of those with eating disorders.

Discussion: This investigation provides the first documented eating disorder simulation for supporters of those with eating disorders. It provides preliminary evidence for the feasibility of simulation to increase the level of empathy and understanding of eating disorders. The workshop is recommended for friends, family members, and healthcare professionals, in order to better understand what it's like to have an eating disorder and how to support those in recovery.

2. Keywords: Eating disorders; Simulation; Workshop; Social support; Empathy; Understanding

3. Introduction

An eating disorder (ED) is defined as "a disturbance in eating behavior that endangers a person's physical and psycho-social health" [1]. Eating disorders are typically categorized into anorexia nervosa, bulimia nervosa, and non-specified eating disorders, with various subtypes of each. Anorexia nervosa is an emotional disorder marked by extreme restriction of food intake, and bulimia nervosa is an emotional disorder marked by extreme overeating, followed by depression and purging [2, 3]. The disorders affect an estimated 24 million Americans, as well as 70 million people worldwide [4]. Unfortunately, the numbers continue to grow. Cases of anorexia nervosa have doubled in the past ten years [3] and it is estimated that 1-3% of American adolescents have bulimia nervosa, with the disorder affecting as many as 20% of college-age women [3]. Perhaps most concerning, is that EDs have the highest mortality rate of any mental illness, estimated at 1 in 10 [5]. Regrettably for those in recovery from an ED, there is also an extremely high relapse rate, estimated at 30-60% [5].

Despite these frightening statistics, researchers have yet to find an effective treatment. There are currently no pharmaceutical treatments specifically for EDs, and only a few types of psychotherapy have shown significant improvements: cognitive behavioral therapy (CBT), dialectical behavior therapy (DBT), and the family-based

Maudsley treatment (FBT). Even when using these approaches, eating disorder treatment is only successful in 45-60% of cases [4].

One of the largest correlations found among individuals who achieve and maintain recovery from an ED is a strong social support system [6]. However, a strong support system is difficult for many to obtain due to the lack of understanding of EDs among friends and family. With 80% of those who have received ED treatment falling into at least one relapse [4], the need for continued research in this area is necessary. There have been no studies thus far with a focus on increasing empathy and understanding of EDs by friends and family through simulation of ED thoughts and feelings.

Simulations of hallucinations have been used in previous literature to promote awareness and increase empathy levels regarding schizophrenia [7-9]. Three different studies found that voice simulation of auditory hallucinations led to both increased levels of empathy and increased understanding of schizophrenia [7-9]. Specific to the work done by Kalyanaraman et al. [7] virtual simulation also created more positive perceptions of people with schizophrenia. The results of each of these studies show promise for expanding the usage of simulation to supporters of other mental illnesses, such as EDs.

Previous literature has explored the use of simulation for increased understanding/empathy in migraines, dementia, and autism spectrum disorders [10-12]. For example, the Migraine Experience, created by Excedrin, uses augmented reality to bring empathy to migraine sufferers, replicating symptoms such as sensitivity to light and sound, disorientation, and visual disturbances [10]. The Virtual Dementia Tour was created to help supporters of people with dementia get a glimpse of what it feels like to experience dementia, including problems with balance, pain, and vision, and has been successful at increasing understanding of the disease [11].

In addition to use for understanding medical conditions, simulation has been used in education. It has been clinically shown to improve empathy and empathetic behavior in learners [13]. This is particularly relevant for supporters of those with EDs who desire to learn how to best support their loved ones. Increasing levels of empathy toward a stigmatized group has been shown to do more than cause particular feelings, but to lead people to take action [14].

As evidenced by the literature, simulation appears to be a method that can be used to increase understanding and empathy levels of medical diagnoses in friends and family. In addition, increased levels of understanding and empathy cause people to take action to help the situation. There is a gap in the literature regarding the usage of simulation to increase levels of understanding and empathy for supporters of those with EDs.

To fill this gap, we created Eating Disorder (ED) Simulator 1.0, a simulation-based workshop with a purpose of helping supporters of those with EDs to better understand what it's like to have one and the importance of support for ED recovery. Based upon research of prior simulations, the simulator was determined to take place in person, and was designed to allow supporters of those with EDs to "be in the shoes" of a person with an ED. The original workshop (ED Simulator 1.0) consisted of a three-hour, single-day simulation including three major components: a workout simulation, a grocery shopping simulation, and a meal simulation. Participants would take part in an activity for each of the three major components, while various types of sensory input would be utilized to imitate the thoughts and feelings brought on by an ED. Examples of sensory input would include an audio recording with verbal ED thoughts, along with a distorted mirror. Group discussion would also be utilized during the workshop.

The purpose of this investigation was to develop a simulation-based workshop for supporters of those with EDs. We hypothesized that the simulation would increase their level of understanding and empathy.

4. Materials and Methods

4.1 Materials

Aim 1: Group 1 Questionnaires (Demographics, ED Thoughts and Themes, Feedback on Potential Intervention). **Aim 2:** Posters covered in images from various types of media depicting society's emphasis of size, body, weight, shape, and diet; distorted mirror; conference room; gym with exercise equipment; smartphone or tablet for each Group 2 participant, pair of headphones for each Group 2 participant, food for meal (see Table 1), labels for all foods/drinks served providing nutrition information (Calories, grams of fat, grams of sugar), Beck Depression Inventory, Toronto Empathy Questionnaire, Group 2 Feedback Form.

In order to accomplish our purpose, we separated our work into two aims:

1. Modify ED Simulator 1.0 based upon specific feedback from people with clinically diagnosed EDs to create ED Simulator 2.0.
2. Administer the simulation to supporters of those with an ED to determine preliminary effects on their level of understanding and empathy.

4.1.1 Aim 1: Modify ED Simulator 1.0 based upon specific feedback from people with clinically diagnosed EDs to create ED Simulator 2.0.

(i) ***Subjects:*** Group 1 participants (n=16) consisted of people with diagnosed EDs, who were currently in active recovery (Table 2). Participants were recruited by word of mouth through local eating disorder network and through email. Twenty-four potential participants met the inclusion criteria; 16 of which decided to participate (response rate = 66%). All Group 1 participants provided verbal informed consent, and were enrolled November 2016- January 2017. The study was approved by the Washington University Medical Institutional Review Board.

(ii) ***Data Collection:*** Each Group 1 participant answered questions via questionnaires. The demographics section included questions about ED history, social support, and whether or not increasing family/friends' understanding of EDs would benefit their recovery. The next section asked participants to describe the types of thoughts that commonly went through their mind while exercising, while grocery shopping, and while eating a meal, along with any other ED thoughts that commonly impacted them. The final section of the questionnaire provided a one-page summary of ED Simulator 1.0, and then asked whether or not the proposed workshop would be helpful for their friends/family, about the practicality of the workshop, what changes should be made, and for any other feedback to improve the workshop.

(iii) *Data Analysis:* After collecting data from Group 1, three researchers read the transcriptions to familiarize themselves with the participants' responses. They separately revised and coded the qualitative data from the questionnaires, looking for common themes. After iteratively coding the data individually, researchers met together to discuss themes found and to condense the findings into higher-order themes through grouping, following the guidelines of inductive qualitative content analysis [15]. Theme saturation was achieved, indicating a sufficient number of participants were used [16-19]. The themes were used to create the audio recordings for each of the three components of the workshop, and to modify ED Simulator 1.0 and thus create ED Simulator 2.0.

Aim 2: Administer the protocol to determine preliminary effects on level of understanding and empathy.

(i) *Subjects:* Group 2 participants (n=23) were friends, family members, and/or supporters of those with EDs. Group 2 participants were recruited through word of mouth through local ED network and through email (email addresses provided by Group 1 participants). Group 2 participants signed hard copies of informed consent documents, as approved by the Washington University Medicine Institutional Review Board, and were enrolled from March 2017-April 2017.

(ii) *Data Collection:* ED Simulator 2.0 was tested with Group 2 participants on two different dates. All participants were screened to ensure they met the inclusion criteria, and signed informed consent forms. Participants then filled out both the Beck Depression Inventory (BDI) and the Toronto Empathy Questionnaire. Next, the researcher provided a general overview of what would occur during remaining 80-minutes, and answered any questions. There were five posters on the walls, each covered in a collage from various forms of media. Examples of images in the collages include pictures of thin women, swimsuit models, advertisements about diets, weight loss, weight, shape, and fitness advertisements. There was also a curved convex mirror, which distorted the reflection to make it appear wider than it was. Participants were encouraged to view the collages and to look at themselves in the distorted mirror, emphasizing the fact that people with EDs have a heightened sensitivity of media depicting body, weight, size, and shape, and that some people with EDs literally do not see their reflections accurately.

Participants then downloaded the audio recording for the exercise simulation onto smartphones or tablets. Participants then went into the gym, and were told to exercise while listening to the audio recording using headphones. Participants could do whatever type of exercise they preferred, such as using the treadmills, stationary bikes, ellipticals, free weights, or simply stretching. The exercise simulation lasted approximately 15 minutes.

Next, participants returned to the conference room. They were given paper and pens and told to journal about what they had just experienced, what was surprising, and what they learned. After a few minutes of self-reflection, the researcher led a group discussion, providing participants with the opportunity to talk to one another about the exercise experience. All participants were involved in the discussion.

Then, participants watched a video of a grocery store simulation. The video depicted a woman with an ED going to a grocery store, and contained audio representing her thoughts as she shopped for various food items. The video lasted approximately 15 minutes. Following the video, participants once again were given time to journal about what they had just watched and then took part in a 5-minute discussion.

The final component of the simulation was the group meal. A table was set up and included a line of plates, silverware, and food (Table 1).

Food	**Varieties Offered**					
Bread	Wheat	White	Gluten-free	-	-	-
Cheese	Colby-Jack	Thin-sliced swiss		-	-	-
Meat	Oven-roasted turkey	Honey turkey	Chicken breast	Honey ham	Bacon	Vegetarian “meat” alternative

Fruits/vegetables	Grapes	Strawberries	Apple slices	Baby carrots	-	-
Chips	Single-serve bags of chips	Single-serve bags of pretzels	-	-	-	-
Desserts	Oreos	Rolo chocolates	Hershey’s chocolate nuggets	Hershey’s kisses	Starburst	-
Drinks	Water	Sweet tea	Diet green tea	-	-	-

Table 1: Foods Provided in Group Meal.

Next to each food/drink item was a notecard with the name of the food, the serving size, the calories, grams of fat, and grams of sugar. The notecards were designed to imitate the emphasis that people with EDs put on food selection, counting calories and grams, and comparing foods. Participants downloaded the audio recording for the group meal onto their smartphones, and were told to listen to the audio recording while making their plate. While waiting in line to make a plate, participants were encouraged to view the media collages and to look at themselves in the distorted mirror.

Once everyone had made a plate, the group ate lunch together while discussing their thoughts and feelings. Before leaving, participants completed the Toronto Empathy Questionnaire a second time, and also completed the Group 2 Feedback Form.

(iii) *Outcome Assessments:* Group 2 participants completed three assessments: The Beck Depression Inventory-IA, the Toronto Empathy Questionnaire (TEQ), and the Group 2 Feedback Form. The Beck Depression Inventory-Version 1A is a 21-item questionnaire in relation to symptoms and attitudes that coincide with depression. Each item is presented with ratings on a 4-point scale, ranging from 0-3. The BDI-IA takes about 10-15 minutes to complete.

It is a reliable and valid assessment with the internal consistency (Cronbach's alpha) averaging in the high 0.80s, and its concurrent and construct validity has been comparing to various psychological assessments [20]. The TEQ is a self-report tool used to measure empathy, consisting of 16 statements, each rated on a 5-point Likert scale from 0=never to 4=always. Responses are summed to give a total score ranging from 0-64, with higher scores correlating with higher levels of empathy. The TEQ has been shown to be reliable with an internal consistency ranging from a Cronbach's alpha of 0.85-0.87 and a test-retest reliability of $r = 0.81$. The TEQ is considered valid with a positive correlation to other measures of empathy including the Empathy Quotient ($r = 0.80$, $p < 0.001$) and the empathic concern subscale of the Interpersonal Reactivity Index ($r = 0.74$, $p < 0.001$) [21].

The Group 2 Feedback Form consisted of four questions with a 10-point Likert scale: 1) This workshop helped me to understand what it’s like to have an ED; 2) This workshop helped to increase my level of empathy for those with EDs; 3) I feel better equipped to support someone with an ED based on what I’ve learned in this workshop; and, 4) I would recommend this workshop to another person supporting a person with an ED. In addition, the form provided space for open-ended answers regarding what was most helpful, what could improve the workshop, and any other comments/feedback.

(iv) *Data Analysis:* After completion of both workshops, the quantitative data were analyzed using SPSS [22]. The Toronto Empathy Questionnaire was scored, according to its guidelines, by adding the scores of the positively worded questions to the reverse scores of the negatively worded questions, to give a final numerical value. The pre and post values of the Toronto Empathy Questionnaire were analyzed using a Wilcoxon Signed Ranks Test. Effect size of the change in TEQ scores was determined by calculating Cohen’s d. Descriptive statistics were used to calculate the mean values and standard deviations for each of the four questions on the Group 2 Feedback Form. Qualitative data from the Group 2 Feedback Form was also documented and analyzed using a deductive approach. The data were first transcribed, and then read while keeping in mind the thematic framework of social support in ED recovery. Researchers looked for similarities and differences amongst responses, noticing patterns, and then coded recurring themes. Coded themes were charted, mapped, and interpreted, following the guidelines of summative content analysis [23, 24].

5. Results

Demographic information regarding both Group 1 and Group 2 participants are described below (Table 2).

	Group 1 Participants	**Group 2 Participants**
Number of participants	n = 16	n = 23
Group description	People with diagnosed eating disorders	Friends/family members/supporters of those with diagnosed eating disorders
Inclusion Criteria	Clinically diagnosed with an eating disorder; at least 16 years of age.	At least 18 years old
Exclusion Criteria	Currently receiving treatment at a higher level of care than outpatient (hospitalization, partial hospitalization, day treatment, or intensive outpatient treatment)	Any history of an eating disorder or disordered eating habits; score of 11 or higher on the Beck Depression Inventory
Gender	0 men/ 16 women	6 men / 17 women
Type of informed consent	verbal	written
Mean age	28	n/a
Beck Depression Inventory	n/a	Mean: 3.1; Standard Deviation: 2.5

Table 2: Participant Demographics.

5.1 Group 1 Results

5.1.1 Feedback on ED Simulator 1.0: A key change from ED Simulator 1.0 to 2.0 was the grocery shopping simulation. It had originally been designed to have participants physically go to a grocery store and shop for a list of items while listening to an audio recording of eating disorder thoughts. Many Group 1 participants gave feedback about the practicality of this component. Suggestions for modification included creating a simulated "grocery store" within the conference room, requiring participants to choose between various types and brands of foods based on nutrition labels, and the use of a video to simulate the experience. Based on participants' suggestions, the grocery shopping component was changed to a video experience, in which the researcher would create a video of a person going to the grocery store, and would record ED thoughts throughout the video. In summary, Aim 1 modified the workshop's length of time, component specifics, types of sensory input, length and type of participant discussions, and assessment battery, thus creating ED Simulator 2.0 (Table 3).

	ED Simulator 1.0	**ED Simulator 2.0**
Length of time	Single-day, 3-hour workshop	Single-day, 90-minute workshop
Components of workshop	3 separate 1-hour components: an exercise simulation, a grocery store simulation, and a group meal simulation	3 separate 15-min components: an exercise simulation, a grocery store video simulation, and a group meal simulation
Types of sensory input	Audio recordings, distorted mirror	Audio recordings, distorted mirror and collages of images/advertisements from various types of media
Discussions	Single 30-minute discussion after completion of all three simulation components	5-10-minute time of individual reflection plus group discussion, occurring after each of the 3 simulation components
Assessment battery	Key-informant interviews, Toronto Empathy Questionnaire	Group 2 Feedback Form, Toronto Empathy Questionnaire

ED thoughts and themes

Table 3: Creation of ED Simulator 1.0 and ED Simulator 2.0.

The concept of the simulation-based workshop was strongly supported by Group 1 participants (Table 4). When asked whether or not the proposed workshop would likely be beneficial for their supporters, responses included:

“Yes for sure! They want to help me but they don’t know how. They get frustrated and say things like, ‘Just eat!’ which are not helpful at all. They don’t understand how difficult it is to fight an ED every single day of your life.”

“Reaching out and getting support is one of the most helpful tools when fighting thoughts and urges. If my friends and family had a better understanding of what it’s like to have an ED, I would have an easier time reaching out. I would feel less judged and therefore more open to share the hard things that are going on in my head. I think if people could empathize more, it would help me be kind to myself instead of criticizing myself for still struggling with my ED. The empathy would help me continue in my recovery.”

“Increased support and understanding is such an important aspect in the life of recovery, and it is my true belief that without it recovery is not possible. We all need a support system, and we all need to know that we are not alone.”

Prompt	**Theme 1**	**Theme 2**	**Theme 3**
Why is there a need for social support in recovery?	Supporters want to help but don’t know how	Increase empathy and understanding	Decrease judgment, isolation, and secrecy
Would the proposed workshop be beneficial for supporters?	Help people to feel understood	Experiential snapshot of an eating disorder	Experience the contrasting thought patterns

Table 4: Group 1 Participants’ opinions regarding the need for a simulation-based workshop.

Group 1 participants were asked to provide common thoughts they experienced while working out, grocery shopping, and eating a meal. The most prevalent individual codes for each topic were analyzed, and researchers collaborated to agree upon themes emerging from condensed codes (Table 5).

Prompt	**Themes**	**Individual Codes**
What eating disorder thoughts do you commonly experience while working out?	• work harder, it's never enough	• not working hard enough • body comparison • self-judgment • work through it • you're so weak • you're so lazy • minimizing the ED • compensation
What eating disorder thoughts do you commonly experience while grocery shopping?	• undeserving • follow the rules	• calories • fat grams • sugar content • self-judgment • perception of others • food rules • low self-worth • spinning thoughts
What eating disorder thoughts do you commonly experience while eating a meal?	• losing weight will make things better.	• food apathy • sense of control • feelings of guilt • feeling like it's unfair • body image • portion sizes • losing weight makes it better

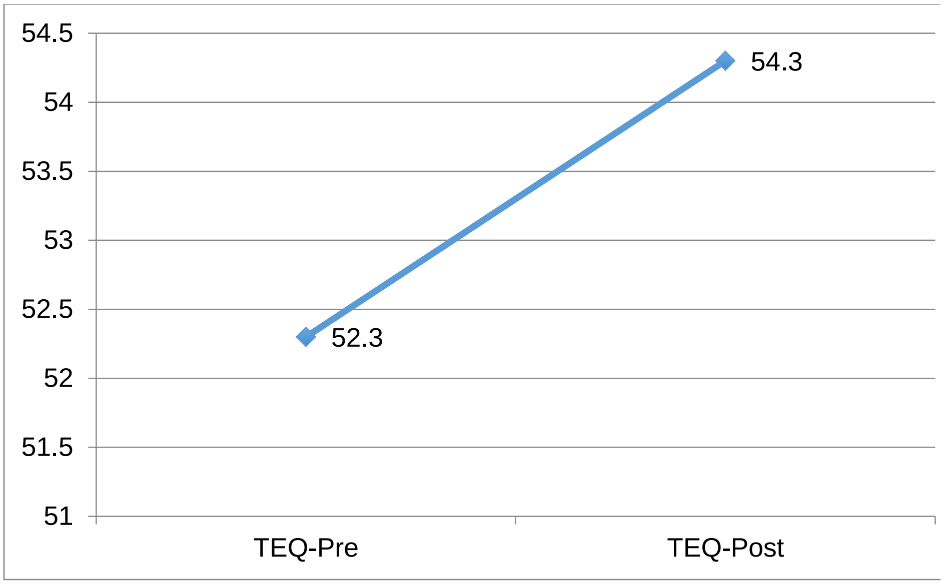
Table 5: Eating disorder thoughts while working out, grocery shopping, and eating a meal.

These coded results were then used to create the audio recordings and video simulation used in the workshop. Specific phrases that were commonly repeated amongst Group 1 participants were directly quoted in the audio and video recordings. The "spinning thoughts" code was utilized by repeating phrases multiple times and including obsessive, intrusive thoughts. "Contrasting thought patterns" was applied to the recordings by having sections with two separate voice recordings playing at the same time. For example, the healthy voice stated, "You need to follow your meal plan. Get the regular milk," while at the same time, the ED voice could be heard whispering, "Your meal plan will make you fat. Don't you dare get the regular milk. You need to lose weight. Life will be so much better if you can just lose weight." The concept of body comparison was included by recording thoughts focusing on others' bodies, such as, "Look at her. She is so thin, she must be such a hard worker. So dedicated. She probably spends hours in the gym." Minimizing the ED consisted of thoughts such as, "It's not that bad. I can lose a little more. Then I'll be happy." The control aspect of the ED thoughts was incorporated through thoughts such as, "No one else can choose what I put into my body. Only I can." Rule-following thoughts included phrases such as, "You're not allowed to buy food with sugar in it," and, "you're not allowed to leave the gym until the thin girl does." In summary, audio and video recordings were created based upon the coded thoughts and themes, including both the concepts provided and specific phrases used by Group 1 participants (Exercise Simulation: https://soundcloud.com/user-38524987/ed-audio;Grocery Shopping Simulation: https://www.youtube.com/watch?v=l405K0uoixg; Selecting Meal Options Simulation: https://soundcloud.com/user-38524987/selecting-meal-options).

5.2 Group 2 Results:

5.2.1 Beck Depression Inventory: The assessment provides a result of a score between 0-63. A score of 0-10 is considered to be normal, with higher scores indicating varying levels of depression. Participants were excluded from the study if they scored 11 or higher on the BDI. One participant scored 14, and was thus excluded, but the remaining 23 participants scored 10 or below, indicating normal fluctuations in mood. The mean BDI score for the remaining 23 participants was 3.1, with a standard deviation of 2.5.

5.2.2 Toronto Empathy Questionnaire: The TEQ was analyzed using a Wilcoxon Signed Ranks Test to compare levels of empathy amongst individuals before and after participating in the workshop, and revealed that ED Simulator 2.0 elicited a statistically significant change in empathy level in supporters of those with eating disorders (Z= -3.344, p= .001), with a small to moderate effect size (d= .40, upper confidence limit= .25, lower confidence limit= -.94). Indeed, mean TEQ score increased from 52.3 (SD= 5.4) to 54.3 (SD= 6.1), amidst a potential range of 0-64, after completion of the simulation-based workshop [22, 25, 26] (Figure 1).



d= .40

Figure 1: Increase in Scores on Toronto Empathy Questionnaire (TEQ) Pre- and Post Intervention.

5.2.3 Group 2 Feedback Form: A 10-point Likert scale was used to ask participants for their level of agreement with four separate statements (1 representing “not at all true for me” and 10 representing “totally true for me”). Results are as follows (Table 6).

Statement	**Mean**	**Std. Deviation**
This workshop helped me to understand what it’s like to have an ED.	9.2	1.1
This workshop helped to increase my level of empathy for those with EDs.	9.5	0.7
I feel better equipped to support someone with an ED based on what I’ve learned in this workshop.	8.5	1.7
I would recommend this workshop to another person supporting a person with an ED.	9.7	0.7

Table 6: Mean Scores of Group 2 Feedback Form (n=23).

5.2.4 *Qualitative Data:*

The most helpful aspects of the workshop for most participants were the audio and video clips and the group discussion. The most common terms used to describe the simulations were "eye-opening" and "exhausting." Direct quotes from participants included:

"I think health care providers should definitely have something like this as part of their training. It really sheds light on how hard it actually is for people with EDs. So many people say things like, 'Why can't they just eat?' and I think this workshop answers that question."

"As a mother of a child with an ED, the presentation was really helpful to get in the mind of someone with this disease- very eye-opening."

"I felt the anxiety, conflict, and paralysis of an ED."

"Over the years we learned about how this happens to our daughter, but actually hearing the voices and trying to accomplish a workout or pick out food to eat really brought it to a different level of reality."

6. Discussion

The purpose of this investigation was to develop an ED simulation workshop for supporters of those with EDs. The main limitation of the investigation was the small sample size for both Group 1 and Group 2 participants (n=16, n=23, respectively). Although we believe that the sample size does provide valuable data, having more participants would further validate the study. Having more Group 1 participants could allow for more feedback on how to best modify the workshop, and more Group 2 participants could provide more powerful data describing changes in level of empathy and understanding. Group 1 participants were all Caucasian women living in various parts of the U.S., which appears biased, but is actually representative of the ED population.

In agreement with previous literature, the simulation was found to be effective at increasing empathy and understanding of EDs, as it has with diagnoses such as schizophrenia, autism spectrum disorder, dementia, and migraines [7-12]. Each of these studies created a simulation of their respective health concern, and found the simulation to elicit empathy and/or understanding among participants completing the simulation. In these studies, increased empathy and/or understanding was measured through participant feedback during interviews and self-report questionnaires using Likert-scales. Our study follows suit, adding the usage of a valid and reliable empathy assessment, and expanding the successful usage of simulation to the ED realm. To our knowledge, this is the first time that the Toronto Empathy Questionnaire has been used in relation to EDs.

This study provides the first documented simulation of an ED to be tested among supporters of those with EDs. It provides preliminary evidence for simulation as a feasible intervention for increasing level of empathy and understanding of EDs. Due to the high number of people exhibiting EDs and its high rate of mortality, this finding has the potential to be of high impact.

Clinically, the simulation could be used to help increase the level of empathy and understanding among supporters of those with EDs. An environment much the same as was used here could be set up in a clinic, supervised by a healthcare professional familiar with ED recovery, and advertised to the public. Another alternative could be offering the simulation to local treatment facilities, as suggested by a Group 2 participant who had a daughter with an ED. She explained that her daughter has been in and out of treatment for 12 years at various treatment facilities, yet this is the first time that she has experienced any type of ED simulation. Most treatment centers have some sort of family-based treatment involved. Examples include a monthly “family weekend” where family members of those currently receiving treatment visit the treatment center, meet the residents, and learn about EDs, or weekly family support groups which provide education on EDs and an outlet for family members to express frustration and voice their concerns. The mother explained that this workshop would be an excellent adjunct educational tool for friends and family members, perhaps being offered at a particular treatment center monthly or in the local community on a regular basis. In addition, the simulation could also be used for healthcare professionals working in the field of EDs, including therapists, social workers, case managers, physicians, nurses, psychiatrists, and dietitians, along with students in these fields.

Another potential modification to the simulation would be to incorporate a time for question and answer with a panel of speakers. Speakers could include a person in recovery from an ED, the family member(s) of a person in recovery from an ED, and various types of healthcare professionals that work with people with EDs. Workshop participants could have the opportunity to ask questions and hear responses from a variety of viewpoints.

Further research is needed to investigate the long-term impact of the workshop on supporters of those with EDs, and how increased support affects those in recovery from EDs Questions to address include: 1) Does the increased level of understanding and empathy sustain over time? 2) Does the increased level of understanding and empathy directly help supporters to provide assistance to those in recovery from EDs? 3) Do people with EDs experience increases in recovery behaviors or decreases in ED behaviors due to the increased social support? Additionally, future research may modify the existing workshop based on participant feedback.

In summary, people with clinically diagnosed EDs agreed that additional social support would be beneficial to their recovery, that most of their current supporters do not understand the struggles of an ED, and that they would like their current supporters to take part in the proposed workshop. The feedback, thoughts, and themes provided by people with clinically diagnosed EDs were used to modify the workshop to best simulate an ED. When the simulation was tested on supporters of those with EDs, it was shown to be effective at increasing level of empathy and understanding of EDs. This work provides a baseline intervention that can be utilized to educate and guide friends and family members of those with EDs, and healthcare professionals working in the ED field. It has the potential to allow friends, family members, supporters, and healthcare professionals to get a glimpse of the thoughts and feelings associated with an ED; and thus impact the millions of people facing these struggles.

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