Institutional Review Board

HRP-591 - Protocol for Human Subject Research

Application for Review of Human Research: IRB Protocol Summary

Protocol Title: Effect of Group Led Creative Writing on Mood in Cancer Patients

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1. Add this completed protocol template to your study in CATS IRB (http://irb.psu.edu) in the "Basic Information" section. Links to Penn State's protocol templates are available in the same location where they are uploaded, and their use is required.
2. This template is provided to help investigators prepare a protocol that includes the necessary information needed by the IRB determine whether a study meets all criteria for approval.
3. There may be sections in this template that do not apply. If a section or question does not apply to the research study in question, provide the response "Not Applicable."
4. **DO NOT TYPE IN THE GRAY BOXES.** All guidance language appears in gray boxes and these boxes MUST be deleted from the final version of the protocol prior to upload to CATS IRB.

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1.0 PROTOCOL TITLE

1.1 Effect of Group Led Creative Writing on Mood in Cancer patients.

1.2 Brief Title: Effect of Creative Writing on Mood in Cancer Patients.

2.0 STUDY SPONSORSHIP

2.1 Funding Sponsor: Penn State Hershey Cancer Institute
Fifty Shades of Pink (Breast Cancer Endowment Fund)

2.2 Primary Sponsor: Penn State Hershey Cancer Institute

3.0 PROTOCOL ABSTRACT

The primary purpose of this study is to determine whether creative writing in newly diagnosed cancer patients and those with recent progression in their disease will have a positive impact on their mental health. Using a randomized controlled trial approach, emotion thermometers will be employed to evaluate participants' responses on a number of domains, such as anxiety, depression, despair, and anger along with a series of survey questions to monitor changes in depressive and anxiety symptoms. Open-ended survey questions will be used to capture how a creative writing intervention impacts participants' experience of their illness. Melissa Greene's *Write from the Heart* program focuses more on creative writing rather than cancer focused topics. Patients in the intervention arm will complete – one and a half hour group sessions every two weeks over the span of 3 months. Participants in the active control arm will be provided a book (i.e., *Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hrs every 2 weeks for a period of 2-3 months.

4.0 OBJECTIVES

4.1 Primary Objectives:

- Mental wellness before and after intervention in the intervention and control groups. A validated Emotional Thermometer Scales will be used to predict changes in parameters reflecting participants' mental health pre- and post-intervention. Survey questions focused on symptoms of depression and anxiety will be used to monitor for changes in mental wellness pre- and post-intervention.

4.2 Secondary Objectives:

- Comparison of mood scores, depression and anxiety symptoms versus frequency of attendance in the intervention arm.
- Comparison of somatic symptom burden between intervention and control group.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms after workshop between genders.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between patients living alone versus with family.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between various cancer types.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who have previously attended a creative writing class versus those who have not.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who completed control group activity and then enrolled in the workshops and attended at least one session.
- Comparison of the frequency of emergency room visits and hospitalizations between intervention and control group during the study period.

- Comparison of cancer status (stable, progressing, in remission) between intervention and control group.

5.0 BACKGROUND

5.1 Scientific Background and Gaps

Cancer is a life-threatening, feared diagnosis and is a source of great distress in patients. Hence in addition to treating cancer, one must address the emotional well-being of patients.

Creative activity has a significant history in providing a wide range of psychological and physiological benefits for cancer survivors (King et al., 2012). When individuals experience a stressful life event or crisis, the higher verbal functions in the cerebral cortex become less accessible (Hass-Cohen, 2008.) Therefore, patients who face such stressful life events of cancer are often left without words to describe their experiences of feelings (Green & Young, 2015). Findings from Green and Young (2015) suggest that creative visual expression, engaging both in an individual and the therapeutic setting, offered an opportunity for young adult survivors to express their emotions from deep within their bodies. It created self-understanding and a sense of healing.

In another study by Bolton (2007) patients indicated that they found the therapeutic writing process beneficial. For example, one participant narrated, “It made it less traumatic than it might have been otherwise.” Creative writing has been recognized to explore and express personal thoughts, feelings, and experiences. Lau Tsu (1973) showed that writing facilitated patients’ ability to discover what they thought felt and remembered. Therapeutic creative writing enhanced their awareness of and ability to express issues to which attention and focus are required. (Esterhing BA et al., 1999)

There is a substantial area of agreement that language, narrative storytelling, forms an essential element in the construction of a coherent identity, sense of self and connectedness to others, and therefore, it is a powerful tool in creative therapy (Smyth, 1998; Wright & Chung, 2001). Roe and Davidson (2005) argue that processes of re-authoring one’s life story are actually integral components of the recovery process itself. A study by Stanton (2002) of breast cancer patients prompted to write about their cancer experience showed a significant decrease in self-reported somatic symptoms and medical appointment visits for cancer-related morbidities three months after participation in the study. A follow-up study by Stanton (2013) encouraged breast cancer patients to create personal websites to chronicle their experience and to communicate with their social network. This study showed significant improvement in positive mood and depressive symptoms after 6 months, particularly in patients undergoing medical therapy at that time. These studies further support that the act of narrative story telling can improve patient wellbeing.

Furthermore, King et al. (2012) suggest that writing can contribute to repair of symbolic functioning and contribute to the development of personal identity. The researchers concluded that, of all the creative arts, writing is least dependent on equipment and/or special environments. Writing workshops are probably better provided by professional writers than by mental health professionals. When health professionals provide activities such as a writing workshop, there is a risk that identification with the illness is reinforced. On the other hand, when a professional writer provides a similar activity, it is the participant’s identity as a writer that is reinforced, rather than their identity as a person with an illness. (King et al., 2012)

Moreover, there is emerging consensus in the UK and USA that there might be advantages if writing therapy is received from facilitators who themselves are trained writers and can work in collaboration with health care professionals. (Hunt & Sampson, 1998; Mc Loughlin, 2004).

5.2 Previous Data

We conducted a pilot study to determine feasibility whether cancer patients can be enrolled, randomized and retained for four weeks for creative writing classes (Feasibility was defined as 50% of our enrolled patients on intervention arm (IA) could attend at least 2 classes). We anticipated enrolling 45 patients over the period of 2 months with randomization into 2 arms: IA and standard of care (SOC). “Write from the Heart” a series of creative writing workshops (CWW) were conducted on IA. Subjects in IA had four, 2-hour weekly CWW whereas SOC arm did not receive any session. We used validated Emotional Thermometer Scales (ETS), ranging 0 (best)-10 (worst), to predict changes in a number of parameters reflecting patient’s mental health pre and post intervention. ETS has five dimensions (distress, anxiety, depression, anger and need help), which are all continuous variables. Due to time constraints we were not able to accrue the desired number of patients. A total of 16 patients were accrued in 1 month period -11 in IA and 5 in SOC. 7 out of 11 (63%) patients enrolled in IA attended at least 75% of classes. Comparisons were made using two-sample T-tests. Although sample size was small, IA did show a decreasing pattern on Total Emotion Score (TES), particularly in depression and anxiety scores (See table 1 and figure 1, 2). For each visit, post-class scores were lower than pre-class scores. We observed that it is feasible for cancer patients to attend focused workshops geared towards mental health wellbeing. IA showed a trend towards mood improvement, although was not shown to be statistically significant which may be attributed to the small sample size. Having shown the feasibility of such a study, we hope to increase the sample size and include more specific methods for quantifying mood improvement in the patient groups. In addition, after reviewing the suggestions (post completion of the study) from the patients who attended these sessions on the study, we concluded that 1.5hours of class twice a month is feasible and helpful for patients.

Variable	Categories	SOC	IA
Baseline TES	Mean (SD)	5.8 (4.3)	6.5 (6.2)
Baseline TES	Median (Range)	5 (0-10)	5 (0-20)
Final TES	Mean (SD)	5.7 (5.1)	0.3 (0.5)
Final TES	Median (Range)	7 (0-10)	0 (0-1)

Table 1: Mean and Median TES at baseline and after intervention in SOC versus IA.

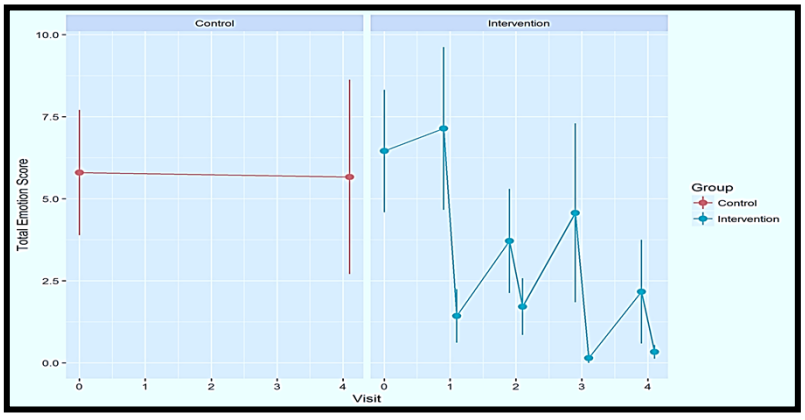


Fig 1: Total Emotions Scores before and after each visit.

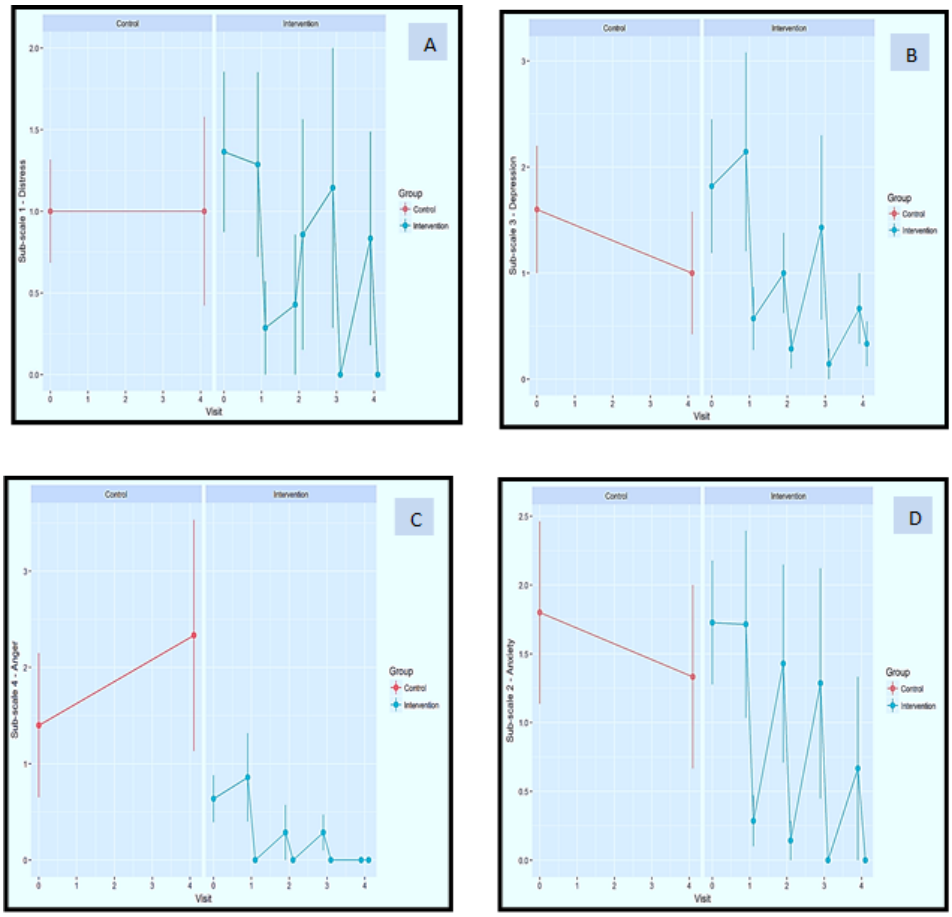


Fig 2, A-D: Emotions Scores before and after each visit; A-D: A-Distress, B-Depression, C-Anxiety, D- Anger

6.0 RATIONALE AND HYPOTHESIS

6.1 RATIONALE:

Cancer generates an increased sense of distress than non-malignant diseases with poor prognoses (Mishel et al., 1984). Persistent mental distress for prolonged periods leads to anxiety and depression. The rate of depression in cancer patients is thought to be up to three times higher than in the general population (Linden et al., 2012). Depression leads to a poorer quality of life (QOL) and affects patient outcomes, with depression resulting in higher rates of mortality in cancer (Colleoni et al., 2000, Pinquart et al., 2010). A meta-analysis revealed that minor or major depression increases mortality rates by up to 39%, and that patients displaying even few depressive symptoms may be at a 25% increased risk of mortality (Satin et al., 2009). The impact of mood and mental wellbeing on cancer progression is considered important by doctors and patients, with >70% of oncologists and 85% of patients believing that mood affects the progression of cancer (Lemon et al., 2004). Our previous data as mentioned before shows that creative writing is feasible and needs to be further studied to understand the effect of group therapy with focused workshop in newly diagnosed or patients with recent recurrence. In addition, we observed that the emotional thermometer scale was not enough to capture the mood of the patients. For example, some patients felt significantly better after attending these sessions and were able to cope with their symptoms but the emotional scale did not reflect that benefit.

6.2 HYPOTHESIS:

This study aims to look at the impact of participating in creative writing workshop group *Write from the Heart,* on cancer patients' emotional well-being. Keeping previous studies in mind, a

professional writer will conduct the workshops, which will enhance the participant's ability to express and enhance their awareness. We anticipate that participation in the workshop will result in a positive effect on the parameters being studied, enabling patients to cope with their illness/cancer better. We hypothesize that group sessions of creative writing workshop could be better than individual sessions.

7.0 CHARACTERISTICS OF THE STUDY POPULATION

7.1 Target Population

Adults with a new diagnosis of cancer, at any stage OR progression of cancer- within three months of enrollment.

7.2 Accrual

We aim to accrue 60 eligible patients over a time span of 4months at the Milton S. Hershey Medical Center.

7.3 Key Inclusion Criteria

- Adult >20 years of age
- Any patient with a cancer diagnosis.
- Ability to understand English language and ability to write without any functional difficulty
- ECOG performance status 0-3

7.4 Key Exclusion Criteria

- Inability to give informed consent
- Severe psychiatry illness (e.g., uncontrolled depression, schizophrenia or psychosis)
- Severe cognitive impairment
- Pregnant females
- Inability to write or understand English

7.5 Vulnerable Populations

None

7.6 Populations vulnerable to undue influence or coercion

If a patient who works for or has some affiliation to Pennsylvania State University happens to be in the potential participant pool, we will verbally stress to him/her that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

7.7 Subject Recruitment

We will recruit participants from our outpatient cancer clinics at HMC (Hershey Medical Center). We will create a pamphlet describing our study briefly and study staff contacts, then distribute in all cancer clinics. This will be given to every cancer patient at any stage, with recurrence, or with progression at HMC. We will also send emails to physicians and nurses at outpatient cancer clinics at HMC for study description and our contact details. If patients are interested, we (study staff) will conduct initial eligibility screening and obtain informed consent from patients to initiate study follows up.

8.0 CONSENT PROCESS AND DOCUMENTATION

8.1 Consent Process

8.1.1 Obtaining Informed Consent

Physician-Investigators of the study will identify patients from their clinic and patients will be approached to participate in the study. Study staff will then discuss the study in detail to make the patient aware of the workshops, intervention, and time commitment involved with the study. If the patient is interested, study staff will answer any remaining questions and obtain written informed consent at the patient's clinic visit with their primary oncologist.

8.1.2 Coercion or Undue Influence during Consent

If a patient affiliated with Pennsylvania State University happens to be in the potential participant pool, we will inform them that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

8.1.3 Waiver of Authorization

Not applicable

8.2 Consent Documentation

8.2.1 Written Documentation of Consent

Study staff members will assist with data and consent collection. If the patients are unable or not competent to give consent, they will not be enrolled in the study.

8.3 Consent – Other Considerations

8.3.1.1 Non-English Speaking Subjects
Not included.

8.3.1.2 Cognitively Impaired Adults
Not included.

8.3.1.3 Subjects who are not yet adults (i.e., infants, children, teenagers)
Inclusion criteria: greater than 20 years of age

9.0 STUDY DESIGN

9.1 Phase

Phase II

9.2 Design

The focus of this study is to determine the difference in mental health parameters following the participation of cancer patients in a creative writing workshop. Participants will be randomized within strata formed by cancer type in order to assure that these potentially important confounding variables are balanced across groups. Patients will be enrolled on a rolling basis over a four to five-month period, allowing patients in intervention arm to participate in 2-3 months workshops (workshops would be held once every 2 weeks). Patients in control arm will be provided a book (*Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hours every 2 weeks. After three months, control group participants can join creative writing workshops at their discretion for the remaining period for writing workshops. Both group members will receive follow up surveys twice a month for two months at the completion of the participant's two-month study period.

9.3 Study Duration

Estimated time to enroll all subjects = 3-5 months (Patients will start being enrolled after IRB approval and we will continue the enrollment up to 4-5 months from the time the 1st class starts for the intervention group)

Length of a participant's participation = 2 - 6 months; Follow up after participant's completion of classes = 2 months

9.4 Endpoints:

9.4.1 Primary endpoints:

- Mood scores before (at baseline) and after intervention (after completion of entire sessions - this may vary as some patients may not be able to complete six sessions). A validated Emotional Thermometer Scales will be used to predict changes in parameters pre and post-intervention.
- Severity of depression and anxiety symptoms before and after intervention between two groups. Validated Depression and Anxiety questionnaires will be used to predict changes, the PHQ-9 and GAD-7 respectively.

9.4.2 Secondary endpoints:

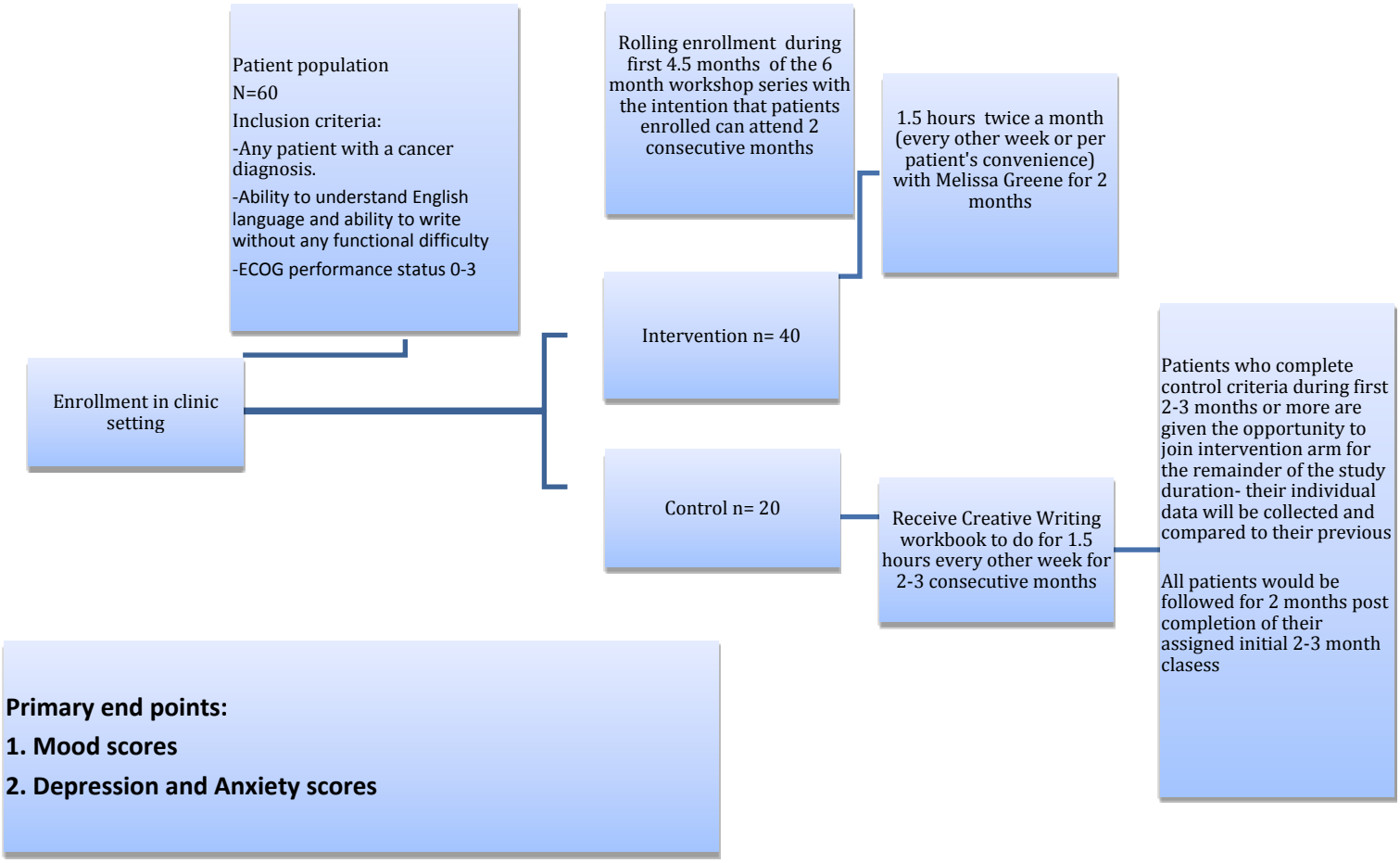
- Mood and symptoms before and after at least 2 sessions of intervention.
- Self-reported somatic symptoms pre and post intervention in two groups. We will use the Somatic Symptom Scale – 8 (SSM-8) to quantify somatic symptom burden.
- Difference in scores and symptoms between various genders.
- Difference in scores and symptoms between patients living alone versus with family.
- Difference in scores and symptoms in different cancer types.
- Difference in scores and symptoms versus number of classes attended.
- Differences between individual mood scores for patients in the control group who later switch to intervention group and attend at least one session
- Mood and symptom scores up to 2 months after completion of the study.

9.4.3 Exploratory endpoints

- Difference in number of emergency room visits and hospitalizations during study period between control and intervention group.
- Comparison of status of cancer (stable, progressing, in remission) between intervention and control group.

9.5 Study Schema

Figure 1:



10.0 STUDY PROCEDURES

10.1 Methods: After enrollment as above, co-investigators of this study or the assigned coordinator will be doing the consent. Patient will be randomized to intervention and control arms in a 2:1 ratio. The intervention arm will receive a dedicated workshop for one and a half hours every 2 weeks. We aim to start a 6 month long program with weekly creative writings workshops, and patient enrollment in the study will continue through the 1st 4.5 months of the 6 month period so that the last enrolled patient could complete 2 classes per month for two months. Each patient will be asked to attend at least two classes per month for a total of two months. These workshops will be held at Hershey Medical Center (HMC). At the initiation of the study along with consent we will collect baseline scores in both groups for each parameter as below. Somatic Symptom Burden (SSM-8 - Figure 2 - reference section), depression symptoms using PHQ-9 (Figure 3 – reference section), and anxiety symptoms using GAD-7 (Figure 4 – reference section) will be collected monthly and following intervention completion.

We will collect mood scores pre and post each session. We will use Emotional Thermometer Scale (EMS) from Dr. Alex J. Mitchell (Feb. 2010), diagram for scales is shown in figure 1. Please see supplementary index for a letter of permission to use from Dr. Mitchell. We will give the Thermometer scales and collect scores pre and post each session and also collect scores pre and post completion of entire course. Control group will do EMS on monthly basis along with other parameters. At the end of the study we will review all participants' medical charts to count view the number of emergency room visits and hospitalizations each participant experienced during the study period. These will be further broken down in categories based on cancer

related vs non-cancer related visits. We will also review their most current cancer disease status after completion of the workshops and categorize whether their status is considered to be stable, progressing, or in remission. Both groups will also receive follow up mood and symptom surveys twice a month for up to 2 months after completion of the participant's two to three month study period.

The control arm will receive a book (i.e., *Writing Down Bones* by Natalie Goldberg) on creative writing and asked to read and do writing activities for one and a half hours once every two weeks. At the completion of the two-month participation or completion of 4 sessions control patients will be given the opportunity to enroll in the creative writing workshops for the remainder of the study period of 6 months. We will collect scores from control arm through the same Emotion Thermometers Scale on a monthly basis. Pre-intervention scores will be obtained at the time of consent or one week prior to the planned start of session 1 for workshop (either in the clinic if possible or mail the score sheet to patients with an enclosed stamped envelope for return of the scales). Depending on participant preference, we can send them emails of the REDCAP surveys containing the same information at set intervals. A sample of the REDCAP surveys is included in supplementary materials. We will also send participants in the control arm a stamped return envelope on a monthly basis if not able to get score sheets in a clinic or over REDCAP, depending on patient convenience and preference. We will call the participants once every 3-4 weeks to check in on their progress. Please see a calendar at the end for details.

To assess for possible confounding results of patients participating in the concurrent exercise study, we will ask participants if they are also enrolled in the exercise study at enrollment and perform a subset analysis for patients who are in the exercise study. They will be randomized into either control or intervention group in the same manner as the other patients in the study. We will additionally include a section of the survey to ask about regular exercise (more than 30 minutes, three times a week) and do a subset analysis of these patients as well.

We will be collaborating with the Department of psychiatry at HMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who requests psychiatry follow up will be referred to Dr. Michael Hayes. If participants report the presence of suicidal ideation per question nine on the PHQ-9 [i.e., Thoughts that you would be better off dead or of hurting yourself in some way], they will be referred on an urgent basis to Dr. Michael Hayes or Dr. Aditya Joshi. In the event Dr. Hayes and/or Dr. Joshi are unavailable for follow-up, If any active suicidal thoughts are reported, participants will be referred directly to Emergency Department at Hershey Medical Center.

10.2 Clinical Covariates: Detailed clinical covariates will be obtained from questionnaires and medical record review including demographics (age, gender, race), cancer type and stage, psychiatric history, chemotherapy regimen and medication use.

10.3 Creative Workshop: Write from Heart: This workshop for cancer patients usually lasts one and a half hours and is broken into several parts. Usually beginning with inspirational quotes or passages from writings of respected authors, to shift mood and illuminated deeper thought and reflection. The next phase of the class consists of sharing a beautiful or whimsical object handed person to person or placed in the middle of the table to stimulate both curiosity and the senses. When participants are able to relax fully, in tranquil and focused surroundings the imagination easily transforms a bright polished stone or a glass heart with inner fractures into a metaphorical image. The technique of journaling is also encouraged in class, as a way to promote inner awareness to strengthen writing skills and to guide students to reach for their own comfort and consolation, when not in class. Within our setting, it is normal, though not mandatory that writing may lean toward the cancer experience. At the end of each series, students would have learned how to trust their artistic instincts, connect more courageously with

the world of their emotions and transform their fears and revelations about cancer into words on the page.

10.4 Emotional Thermometers Scale: The Emotion Thermometers tool is a simple rapid modular screening tool for detection and monitoring of emotional disorders in clinical practice. It was created by Dr. Alex J Mitchell and has a simple visual-analogue design. It is easy for most patients (including older people) to understand, quick to administer and simple to score. We have already got permission from Dr. Alex J Mitchell for royalty free usage of this scale for 2 years starting from Aug, 2016 till Aug 2018. We will be getting permission from him to extend the usage for an additional 1-2 years.

10.5 Survey of Depression and Anxiety symptoms: For anxiety, we will use Generalized Anxiety Disorder 7-item (GAD-7) validated scale by Robert Spitzer et al. For depression we will use Patient Health Questionnaire 9–item (PHQ-9) validated scale by Robert Spitzer et al. Both of these scales do not require any permission for reproduction, display, distribution or usage.

10.6 Control group activities: Participants randomized into the control group were asked to maintain their usual follow up while also reading a book on creative writing for one and a half hours every other week for three months, logging their activity for verification of task completion. Their mode scores will be measured as mentioned above.

11.0 Statistical Plan

11.1 Statistical Analysis Plan

Participants' basic demographic and baseline clinical measurements will be summarized using descriptive statistics. Those summarizations will be based on all patients as well as on patients within each group. This study has several main groups of outcome variables, which reflect several different domains of patient's mental health. The first group is the emotion thermometer (which has five sub-scales), the second is the somatic symptom scale (SSS-8), the third is the Patient Health Questionnaire (PHQ-9), and the fourth is the Generalized Anxiety Disorder questionnaire (GAD-7), which measures participants' anxiety. All the above outcome variable groups are based on questionnaires using Likert-scale questions to take the measurements, and each group may involve multiple sub-dimensions. Both the intervention group and the control group have repeated measures of the outcomes as shown in Figure 1. Graphical methods (such as the line plot of mean/SD values vs. time) will first be used to illustrate the mean and standard deviation values of the mode, depression, and anxiety scores through the time for both groups. These methods will help us detect the patterns of how the scores change over time (within-group change) and how the scores differ between groups. We will further use the linear mixed-effect model for repeated measures to analyze the within-group and between-group differences. Every sub-dimension will be analyzed individually, but we will also analyze the composite score for the dimensions. For the patients in the control group this study involves two stages (week 1-12 and week 13-20), and at the end of the 12^{th} week, they can join the intervention group. This setting will allow us to study the effect of the intervention on the control group alone. For this part of analyses, linear mixed-effect models will be set up with the stage serves as an indicator variable in the model. The comparison of outcome variables between certain time points will also be done using paired tests. We will further investigate the possible factors that might affect the change of outcome variables over time. The factors are gender, race, marital status, time from cancer diagnosis (first 3 months, 3-6 months, more than 6 months) and cancer stages. This part of analyses will mainly be focused on the intervention group and the above factors will be examined in the linear mixed-effect models. All analyses will be performed using statistical software SAS version 9.4 or higher (SAS Institute, Cary, NC, USA) and the statistical significance level to be used is 0.05.

11.2 Sample size considerations:

We plan to enroll a total of 60 participants in the study – with 40 participants in the intervention group and 20 participants in the control group (2:1 ratio). This sample size is mainly determined by the capacity of the workshop. With this sample size we are able to detect a standard effect size (the mean difference measured in common standard deviation) of 0.45 with at least 80% statistical power (using two-sample repeated measure ANOVA model, assuming four time-points, and the within-patient auto-correlation being 0.2) .

12.0 CONFIDENTIALITY

How will confidentiality of data be maintained? Check all that apply.

☒ Paper-based records will be kept in a secure location and only be accessible to personnel involved in the study.
☒ Use of a code number to label all research data
☒ Use of a study ID code linking list that will be maintained separate from the research data files on the HMC server (identifiers)
☒ Computer-based files will only be made available to personnel involved in the study through the use of access privileges and passwords.
☒ Prior to access to any study-related information, personnel will be required to sign statements agreeing to protect the security and confidentiality of identifiable information.
☒ Whenever feasible, identifiers will be removed from study-related information.
☐ A Certificate of Confidentiality will be obtained, because the research could place the subject at risk of criminal or civil liability or cause damage to the subject's financial standing, employability, or liability.
☐ A waiver of documentation of consent is being requested, because the only link between the subject and the study would be the consent document and the primary risk is a breach of confidentiality. (This is not an option for FDA-regulated research.)
☐ Precautions are in place to ensure the data is secure by using passwords and encryption, because the research involves web-based surveys.
☐ Audio and/or video recordings will be transcribed and then destroyed to eliminate audible identification of subjects.
☒ Other (specify): All data entered and stored in RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.1 Identifiers associated with data and/or specimens

Identifiers like dates and medical record numbers will be used.

12.2 Use of Codes, Master List

Use of a code linking list will be maintained separate from the research data files on the HMC server. All data entered and stored in HIPAA compliant RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.3 Storage of Data

All electronic files will be encrypted and/or password protected-EXCEL database, stored on a hard drive in locked HMC offices. Paper files will be stored in locked HMC offices/labs of the research team. These will be deleted/ shredded/destroyed at the end of study approval period. Information will be kept confidential and private and managed according to HIPAA guidelines.

12.4 Access to Data

Research team consisting of PI, Co-investigators, team participants, biostatisticians only will have access to the data

12.5 Transferring Data

Not applicable.

13.0 PRIVACY

Protected health information that will be obtained includes patient name, medical record number, and date of birth. This information will be kept in a password-protected database in Excel sheet, behind the Pennsylvania State University firewall as well as the RedCAp database (Co-PI has an active RedCap account). Identifying information will be stored in a separate portion of the database, linked to the analytical database through an alphanumeric code. Published data will only report aggregate, de-identified results.

14.0 DATA AND SAFETY MONITORING

All clinical information will be kept confidential, in a password-protected database or locked, secure location and managed according to HIPAA guidelines.

14.1 Periodic evaluation of data
Data evaluated at our site only.

14.2 Data that are reviewed
Data reviewed at our site only.

14.3 Method of collection of safety information
Data collected safely in a HIPAA compliant, encrypted database- Excel and REDCAP database. Access limited to PI and proxy PI and co-investigators only.

14.4 Frequency of data collection
Biweekly

14.5 Individual's reviewing the data
PI, co-investigators, and statistician from our institution only

14.6 Frequency of review of cumulative data
Every month

14.7 Statistical tests
As mentioned in detail in statistics section

14.8 Suspension of research
Unable to do workshops.

14.9 Multi-center Research
Not applicable

15.0 RISK/BENEFIT ASSESSMENT

15.1 Potential Study Risks

Minimal. It is an intervention to determine changes in mood scales before and after creative writing workshop, and we anticipate minimal risk (breach of confidentiality – measures taken as above) for patients regarding their underlying cancer or treatment.

15.2 Potential Study Benefits

Participants randomized to the intervention with creative writing workshops may experience an improvement in their mood. We suspect that patients may have better adherence to their cancer therapy, but we do not expect any effect on cancer overall.

15.3 Alternatives to Participation
Not participating.

16.0 SUBJECT COMPENSATION

No compensation will be provided. Coffee and light snacks will be served with every workshop.

17.0 NUMBER OF SUBJECTS: 60

17.1 Intervention Arm: 40
17.2 Control Arm: 20

18.0 RESOURCES AVAILABLE

18.1 Facilities and locations

Only the patients seen at Penn State Hershey Cancer Institute will be included. PI has been involved in numerous previous studies at this location.

18.2 PI Time devoted to conducting the research

The PI will be devoted to conducting the research. The Co-PIs will have dedicated research time during their training to conduct the research. The study team will meet at biweekly intervals to review progress and provide feedback.

18.3 Availability of medical or psychological resources:

We will be collaborating with the Department of psychiatry at PSHMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who request psychiatry follow up will be referred to Dr. Joshi.

18.4 Process for informing Study Team

The study team will meet at biweekly intervals to review the progress of the study and to provide feedback.

19.0 ADVERSE EVENT REPORTING:

Reporting Adverse Reactions and Unanticipated Problems to the Responsible IRB

The only possible adverse event or unanticipated problem is the loss of confidentiality, and as far as loss of confidentiality is concerned, in accordance with applicable policies of The Pennsylvania State University Institutional Review Board (IRB), the investigator will report, to the IRB, any observed or reported harm (adverse event) experienced by a subject or other individual, which in the opinion of the investigator is determined to be (1) unexpected; and (2) probably related to the research procedures. Harms (adverse events) will be submitted to the IRB in accordance with the IRB policies and procedures.

20.0 STUDY MONITORING, AUDITING AND INSPECTING

The investigator will permit study-related monitoring, audits and inspections by the Penn State quality assurance program office(s), IRB, the sponsor, and government regulatory bodies, of all study related documents (e.g., source documents, regulatory documents, data collection instruments, study data etc.). The investigator will ensure the capability for inspections of applicable study-related facilities (e.g. workshop room etc.).

21.0 REFERENCES:

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22.0 TABLES and FIGURES for the STUDY

Table 1: DEMOGRAPHICS

Participant	1	2	3	4	5	6	7…
Serial Number							
Alphaneumeric code							
Medical Record Number							
Gender							
Age							
Living Alone vs with family/caretaker							
Primary Cancer Type							
Cancer Stage							
ECOG Performance Status							
Enrolled in the Exercise Study							
Regular exercise on or off the exercise study- >30mins three times a week							
Current Treatment (Surgery, Radiation, Chemo)							
Disease status at completion of study (Stable, Progression, Remission)							
Psychiatric history (previous diagnoses or hospitalizations)							
Current Psychiatric Medications							

Figure 1: Emotion Thermometer Score (ETS)

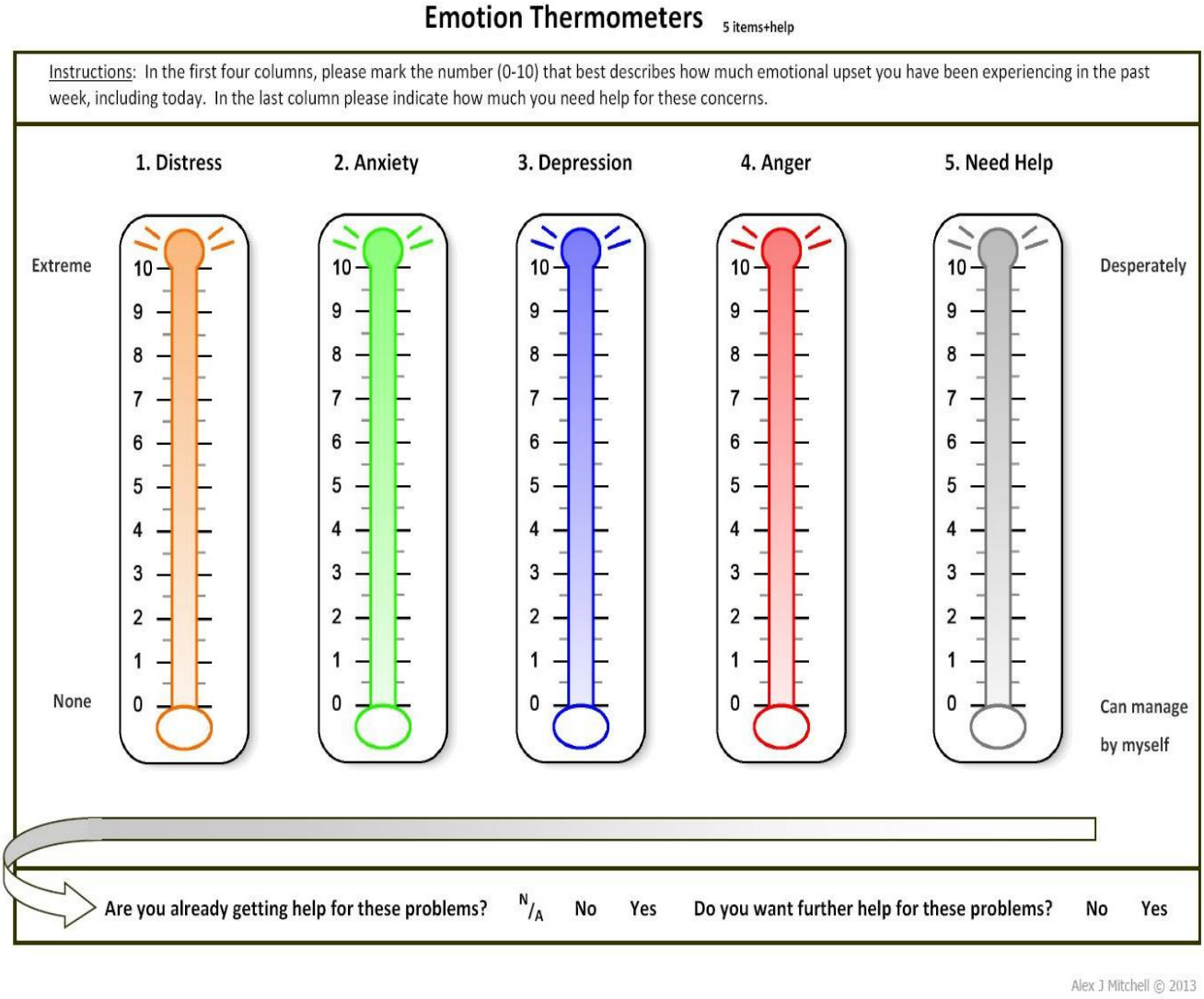

Figure 2: Somatic Symptom Scale

Somatic Symptom Scale – 8 (SSS-8)

During the past 7 days, how much have you been bothered by any of the following problems?	Not at all	A little bit	Somewhat	Quite a bit	Very much
Stomach or bowel problems	0	1	2	3	4
Back pain	0	1	2	3	4
Pain in your arms, legs, or joints	0	1	2	3	4
Headaches	0	1	2	3	4
Chest pain or shortness of breath	0	1	2	3	4
Dizziness	0	1	2	3	4
Feeling tired or having low engery	0	1	2	3	4
Trouble sleeping	0	1	2	3	4

Gierk B, Kohlmann S, Kroenke K, Spangenberg L, Zenger M, Brähler E, & Löwe B. (2014). The Somatic Symptom Scale–8 (SSS-8): A brief measure of somatic symptom burden. *JAMA Internal Medicine*, *174*(3), 399–407.

Figure-3

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

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Figure - 4

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T____ = ____ + ____ + ____)

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Dear Reviewers,

We wanted to bring your attention to 1 protocol change we have completed that we describe below.

1. **The Enrollment Period** has been extended from 3 months to 4-5 months after initiation of study

   Rational: Difficulty with participant accrual.
   Our enrollment period is based on the last day individuals can enroll and still complete the requested number of classes. Previously, for a 6-month class schedule with a request for 3 months of participation, we would enroll for three months. By changing the requested participation to 2 classes/month in two months as described by the previous amendment, we can extend the enrollment period by two additional weeks while still having individuals be able to complete the necessary number of classes.

   Detailed description of changes

   The following changes have been made in the document "**HRP-591 Protocol for Human Subjects Research – Study 00008646 Creative Writing Study – IRB – Amendment 1 protocol v3 tracked edits 8.30**" – you can see these same changes on the Tracked Changes version of the protocol as well:

   1) **Section 9.2 Design**, first paragraph, sentence 3
      - changed three to "four-month period"
   2) **Section 9.5 Study Schema, Figure 1:**
      - edited study schema to reflect enrollment for 4-5 months
   3) **Section 10.1 Methods**
      - Changed enrollment from 1st 3 months to 1st 4-5 months

HRP-591 - Protocol for Human Subject Research

Application for Review of Human Research: IRB Protocol Summary

Protocol Title: Effect of Group Led Creative Writing on Mood in Cancer Patients

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Version Date:
June 20th, 2018

Clinicaltrials.gov Registration #: N/A

If you need help…

University Park and other campuses:	College of Medicine and Hershey Medical Center:
Office for Research Protections Human Research Protection Program The 330 Building, Suite 205UniversityPark, PA 16802-7014 Phone: 814-865-1775 Fax: 814-863-8699 Email: irb-orp@psu.edu	Human Subjects Protection Office 90 Hope Drive, Mail Code A115, P.O. Box 855 Hershey, PA 17033 (Physical Office Location: Academic Support Building Room 1140) Phone:717-531-5687 Fax number: 717-531-3937 Email: irb-hspo@psu.edu

Instructions for using this protocol template:

5. Add this completed protocol template to your study in CATS IRB (http://irb.psu.edu) in the "Basic Information" section. Links to Penn State's protocol templates are available in the same location where they are uploaded, and their use is required.
6. This template is provided to help investigators prepare a protocol that includes the necessary information needed by the IRB determine whether a study meets all criteria for approval.
7. There may be sections in this template that do not apply. If a section or question does not apply to the research study in question, provide the response "Not Applicable."
8. **DO NOT TYPE IN THE GRAY BOXES.** All guidance language appears in gray boxes and these boxes MUST be deleted from the final version of the protocol prior to upload to CATS IRB.

Table of Contents

1.0 PROTOCOL TITLE

1.1 Effect of Group Led Creative Writing on Mood in Cancer patients.

1.2 Brief Title: Effect of Creative Writing on Mood in Cancer Patients.

2.0 STUDY SPONSORSHIP

2.1 Funding Sponsor: Penn State Hershey Cancer Institute
Fifty Shades of Pink (Breast Cancer Endowment Fund)

2.2 Primary Sponsor: Penn State Hershey Cancer Institute

3.0 PROTOCOL ABSTRACT

The primary purpose of this study is to determine whether creative writing in newly diagnosed cancer patients and those with recent progression in their disease will have a positive impact on their mental health. Using a randomized controlled trial approach, emotion thermometers will be employed to evaluate participants' responses on a number of domains, such as anxiety, depression, despair, and anger along with a series of survey questions to monitor changes in depressive and anxiety symptoms. Open-ended survey questions will be used to capture how a creative writing intervention impacts participants' experience of their illness. Melissa Greene's *Write from the Heart* program focuses more on creative writing rather than cancer focused topics. Patients in the intervention arm will complete – one and a half hour group sessions every two weeks over the span of 3 months. Participants in the active control arm will be provided a book (i.e., *Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hrs every 2 weeks for a period of 2-3 months.

4.0 OBJECTIVES

4.1 Primary Objectives:

- Mental wellness before and after intervention in the intervention and control groups. A validated Emotional Thermometer Scales will be used to predict changes in parameters reflecting participants' mental health pre- and post-intervention. Survey questions focused on symptoms of depression and anxiety will be used to monitor for changes in mental wellness pre- and post-intervention.

4.2 Secondary Objectives:

- Comparison of mood scores, depression and anxiety symptoms versus frequency of attendance in the intervention arm.
- Comparison of somatic symptom burden between intervention and control group.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms after workshop between genders.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between patients living alone versus with family.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between various cancer types.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who have previously attended a creative writing class versus those who have not.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who completed control group activity and then enrolled in the workshops and attended at least one session.
- Comparison of the frequency of emergency room visits and hospitalizations between intervention and control group during the study period.

- Comparison of cancer status (stable, progressing, in remission) between intervention and control group.

5.0 BACKGROUND

5.1 Scientific Background and Gaps

Cancer is a life-threatening, feared diagnosis and is a source of great distress in patients. Hence in addition to treating cancer, one must address the emotional well-being of patients.

Creative activity has a significant history in providing a wide range of psychological and physiological benefits for cancer survivors (King et al., 2012). When individuals experience a stressful life event or crisis, the higher verbal functions in the cerebral cortex become less accessible (Hass-Cohen, 2008.) Therefore, patients who face such stressful life events of cancer are often left without words to describe their experiences of feelings (Green & Young, 2015). Findings from Green and Young (2015) suggest that creative visual expression, engaging both in an individual and the therapeutic setting, offered an opportunity for young adult survivors to express their emotions from deep within their bodies. It created self-understanding and a sense of healing.

In another study by Bolton (2007) patients indicated that they found the therapeutic writing process beneficial. For example, one participant narrated, “It made it less traumatic than it might have been otherwise.” Creative writing has been recognized to explore and express personal thoughts, feelings, and experiences. Lau Tsu (1973) showed that writing facilitated patients’ ability to discover what they thought felt and remembered. Therapeutic creative writing enhanced their awareness of and ability to express issues to which attention and focus are required. (Esterhing BA et al., 1999)

There is a substantial area of agreement that language, narrative storytelling, forms an essential element in the construction of a coherent identity, sense of self and connectedness to others, and therefore, it is a powerful tool in creative therapy (Smyth, 1998; Wright & Chung, 2001). Roe and Davidson (2005) argue that processes of re-authoring one’s life story are actually integral components of the recovery process itself. A study by Stanton (2002) of breast cancer patients prompted to write about their cancer experience showed a significant decrease in self-reported somatic symptoms and medical appointment visits for cancer-related morbidities three months after participation in the study. A follow-up study by Stanton (2013) encouraged breast cancer patients to create personal websites to chronicle their experience and to communicate with their social network. This study showed significant improvement in positive mood and depressive symptoms after 6 months, particularly in patients undergoing medical therapy at that time. These studies further support that the act of narrative story telling can improve patient wellbeing.

Furthermore, King et al. (2012) suggest that writing can contribute to repair of symbolic functioning and contribute to the development of personal identity. The researchers concluded that, of all the creative arts, writing is least dependent on equipment and/or special environments. Writing workshops are probably better provided by professional writers than by mental health professionals. When health professionals provide activities such as a writing workshop, there is a risk that identification with the illness is reinforced. On the other hand, when a professional writer provides a similar activity, it is the participant’s identity as a writer that is reinforced, rather than their identity as a person with an illness. (King et al., 2012)

Moreover, there is emerging consensus in the UK and USA that there might be advantages if writing therapy is received from facilitators who themselves are trained writers and can work in collaboration with health care professionals. (Hunt & Sampson, 1998; Mc Loughlin, 2004).

5.2 Previous Data

We conducted a pilot study to determine feasibility whether cancer patients can be enrolled, randomized and retained for four weeks for creative writing classes (Feasibility was defined as 50% of our enrolled patients on intervention arm (IA) could attend at least 2 classes). We anticipated enrolling 45 patients over the period of 2 months with randomization into 2 arms: IA and standard of care (SOC). “Write from the Heart” a series of creative writing workshops (CWW) were conducted on IA. Subjects in IA had four, 2-hour weekly CWW whereas SOC arm did not receive any session. We used validated Emotional Thermometer Scales (ETS), ranging 0 (best)-10 (worst), to predict changes in a number of parameters reflecting patient’s mental health pre and post intervention. ETS has five dimensions (distress, anxiety, depression, anger and need help), which are all continuous variables. Due to time constraints we were not able to accrue the desired number of patients. A total of 16 patients were accrued in 1 month period -11 in IA and 5 in SOC. 7 out of 11 (63%) patients enrolled in IA attended at least 75% of classes. Comparisons were made using two-sample T-tests. Although sample size was small, IA did show a decreasing pattern on Total Emotion Score (TES), particularly in depression and anxiety scores (See table 1 and figure 1, 2). For each visit, post-class scores were lower than pre-class scores. We observed that it is feasible for cancer patients to attend focused workshops geared towards mental health wellbeing. IA showed a trend towards mood improvement, although was not shown to be statistically significant which may be attributed to the small sample size. Having shown the feasibility of such a study, we hope to increase the sample size and include more specific methods for quantifying mood improvement in the patient groups. In addition, after reviewing the suggestions (post completion of the study) from the patients who attended these sessions on the study, we concluded that 1.5hours of class twice a month is feasible and helpful for patients.

Variable	Categories	SOC	IA
Baseline TES	Mean (SD)	5.8 (4.3)	6.5 (6.2)
Baseline TES	Median (Range)	5 (0-10)	5 (0-20)
Final TES	Mean (SD)	5.7 (5.1)	0.3 (0.5)
Final TES	Median (Range)	7 (0-10)	0 (0-1)

Table 1: Mean and Median TES at baseline and after intervention in SOC versus IA.

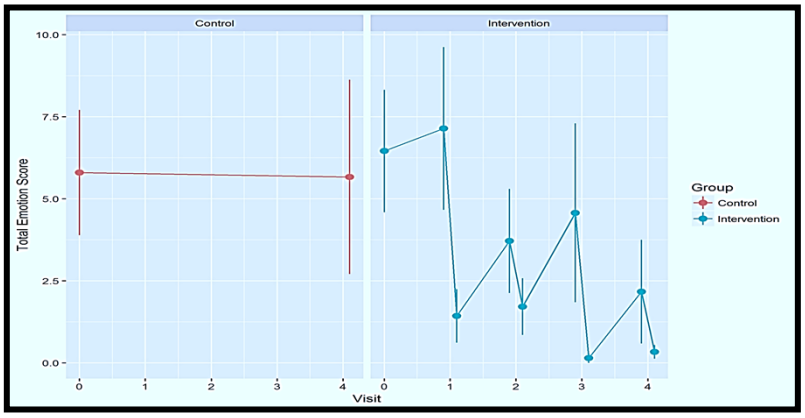


Fig 1: Total Emotions Scores before and after each visit.

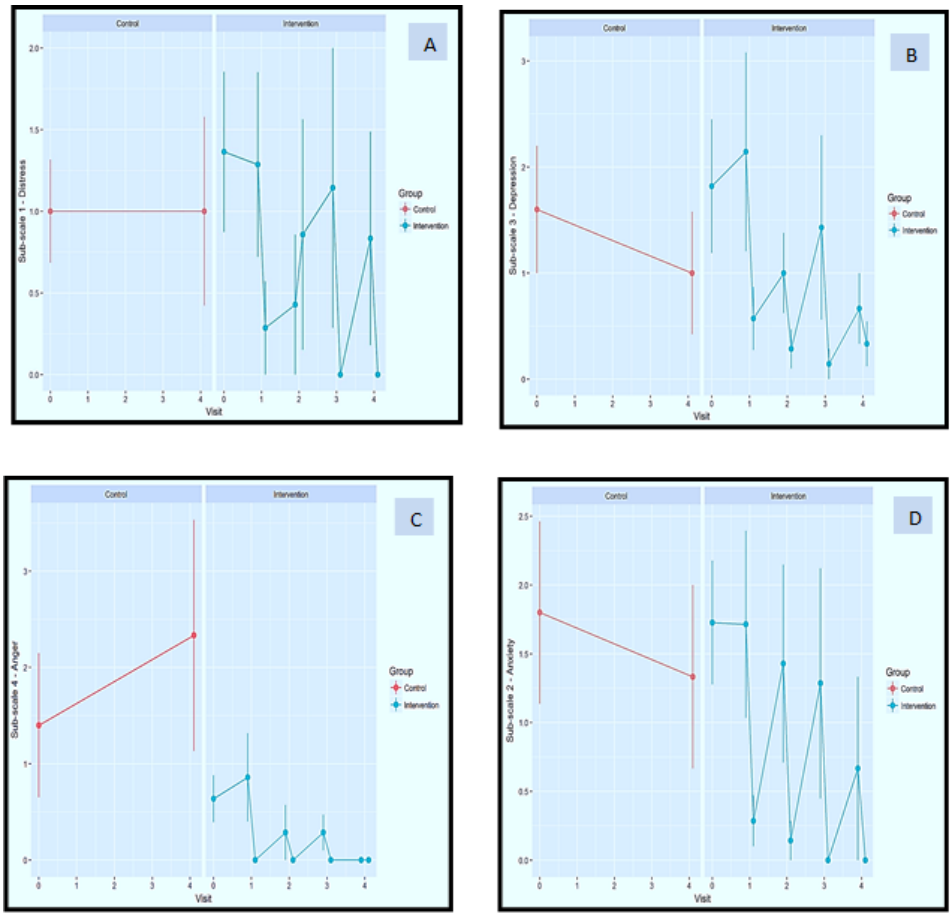


Fig 2, A-D: Emotions Scores before and after each visit; A-D: A-Distress, B-Depression, C-Anxiety, D- Anger

6.0 RATIONALE AND HYPOTHESIS

6.1 RATIONALE:

Cancer generates an increased sense of distress than non-malignant diseases with poor prognoses (Mishel et al., 1984). Persistent mental distress for prolonged periods leads to anxiety and depression. The rate of depression in cancer patients is thought to be up to three times higher than in the general population (Linden et al., 2012). Depression leads to a poorer quality of life (QOL) and affects patient outcomes, with depression resulting in higher rates of mortality in cancer (Colleoni et al., 2000, Pinquart et al., 2010). A meta-analysis revealed that minor or major depression increases mortality rates by up to 39%, and that patients displaying even few depressive symptoms may be at a 25% increased risk of mortality (Satin et al., 2009). The impact of mood and mental wellbeing on cancer progression is considered important by doctors and patients, with >70% of oncologists and 85% of patients believing that mood affects the progression of cancer (Lemon et al., 2004). Our previous data as mentioned before shows that creative writing is feasible and needs to be further studied to understand the effect of group therapy with focused workshop in newly diagnosed or patients with recent recurrence. In addition, we observed that the emotional thermometer scale was not enough to capture the mood of the patients. For example, some patients felt significantly better after attending these sessions and were able to cope with their symptoms but the emotional scale did not reflect that benefit.

6.2 HYPOTHESIS:

This study aims to look at the impact of participating in creative writing workshop group *Write from the Heart,* on cancer patients' emotional well-being. Keeping previous studies in mind, a

professional writer will conduct the workshops, which will enhance the participant's ability to express and enhance their awareness. We anticipate that participation in the workshop will result in a positive effect on the parameters being studied, enabling patients to cope with their illness/cancer better. We hypothesize that group sessions of creative writing workshop could be better than individual sessions.

7.0 CHARACTERISTICS OF THE STUDY POPULATION

7.1 Target Population

Adults with a new diagnosis of cancer, at any stage OR progression of cancer- within three months of enrollment.

7.2 Accrual

We aim to accrue 60 eligible patients over a time span of 4months at the Milton S. Hershey Medical Center.

7.3 Key Inclusion Criteria

- Adult >20 years of age
- Any patient with a cancer diagnosis.
- Ability to understand English language and ability to write without any functional difficulty
- ECOG performance status 0-3

7.4 Key Exclusion Criteria

- Inability to give informed consent
- Severe psychiatry illness (e.g., uncontrolled depression, schizophrenia or psychosis)
- Severe cognitive impairment
- Pregnant females
- Inability to write or understand English

7.5 Vulnerable Populations

None

7.6 Populations vulnerable to undue influence or coercion

If a patient who works for or has some affiliation to Pennsylvania State University happens to be in the potential participant pool, we will verbally stress to him/her that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

7.7 Subject Recruitment

We will recruit participants from our outpatient cancer clinics at HMC (Hershey Medical Center). We will create a pamphlet describing our study briefly and study staff contacts, then distribute in all cancer clinics. This will be given to every cancer patient at any stage, with recurrence, or with progression at HMC. We will also send emails to physicians and nurses at outpatient cancer clinics at HMC for study description and our contact details. If patients are interested, we (study staff) will conduct initial eligibility screening and obtain informed consent from patients to initiate study follows up.

9.0 CONSENT PROCESS AND DOCUMENTATION

9.1 Consent Process

9.1.1 Obtaining Informed Consent

Physician-Investigators of the study will identify patients from their clinic and patients will be approached to participate in the study. Study staff will then discuss the study in detail to make the patient aware of the workshops, intervention, and time commitment involved with the study. If the patient is interested, study staff will answer any remaining questions and obtain written informed consent at the patient's clinic visit with their primary oncologist.

8.1.2 Coercion or Undue Influence during Consent

If a patient affiliated with Pennsylvania State University happens to be in the potential participant pool, we will inform them that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

8.1.3 Waiver of Authorization

Not applicable

8.4 Consent Documentation

8.4.1 Written Documentation of Consent

Study staff members will assist with data and consent collection. If the patients are unable or not competent to give consent, they will not be enrolled in the study.

8.5 Consent – Other Considerations

8.5.1.1 Non-English Speaking Subjects
Not included.

8.5.1.2 Cognitively Impaired Adults
Not included.

8.5.1.3 Subjects who are not yet adults (i.e., infants, children, teenagers)
Inclusion criteria: greater than 20 years of age

9.0 STUDY DESIGN

9.1 Phase

Phase II

9.2 Design

The focus of this study is to determine the difference in mental health parameters following the participation of cancer patients in a creative writing workshop. Participants will be randomized within strata formed by cancer type in order to assure that these potentially important confounding variables are balanced across groups. Patients will be enrolled on a rolling basis over a four to five-month period, allowing patients in intervention arm to participate in 2-3 months workshops (workshops would be held once every 2 weeks). Patients in control arm will be provided a book (*Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hours every 2 weeks. After three months, control group participants can join creative writing workshops at their discretion for the remaining period for writing workshops. Both group members will receive follow up surveys twice a month for two months at the completion of the participant's three-month study period.

9.3 Study Duration

Estimated time to enroll all subjects = 3-5 months (Patients will start being enrolled after IRB approval and we will continue the enrollment up to 4-5 months from the time the 1st class starts for

the intervention group)
Length of a participant's participation = 2 - 6 months; Follow up after participant's completion of classes = 2 months

9.4 Endpoints:

9.4.1 Primary endpoints:

- Mood scores before (at baseline) and after intervention (after completion of entire sessions - this may vary as some patients may not be able to complete six sessions). A validated Emotional Thermometer Scales will be used to predict changes in parameters pre and post-intervention.
- Severity of depression and anxiety symptoms before and after intervention between two groups. Validated Depression and Anxiety questionnaires will be used to predict changes, the PHQ-9 and GAD-7 respectively.

9.4.2 Secondary endpoints:

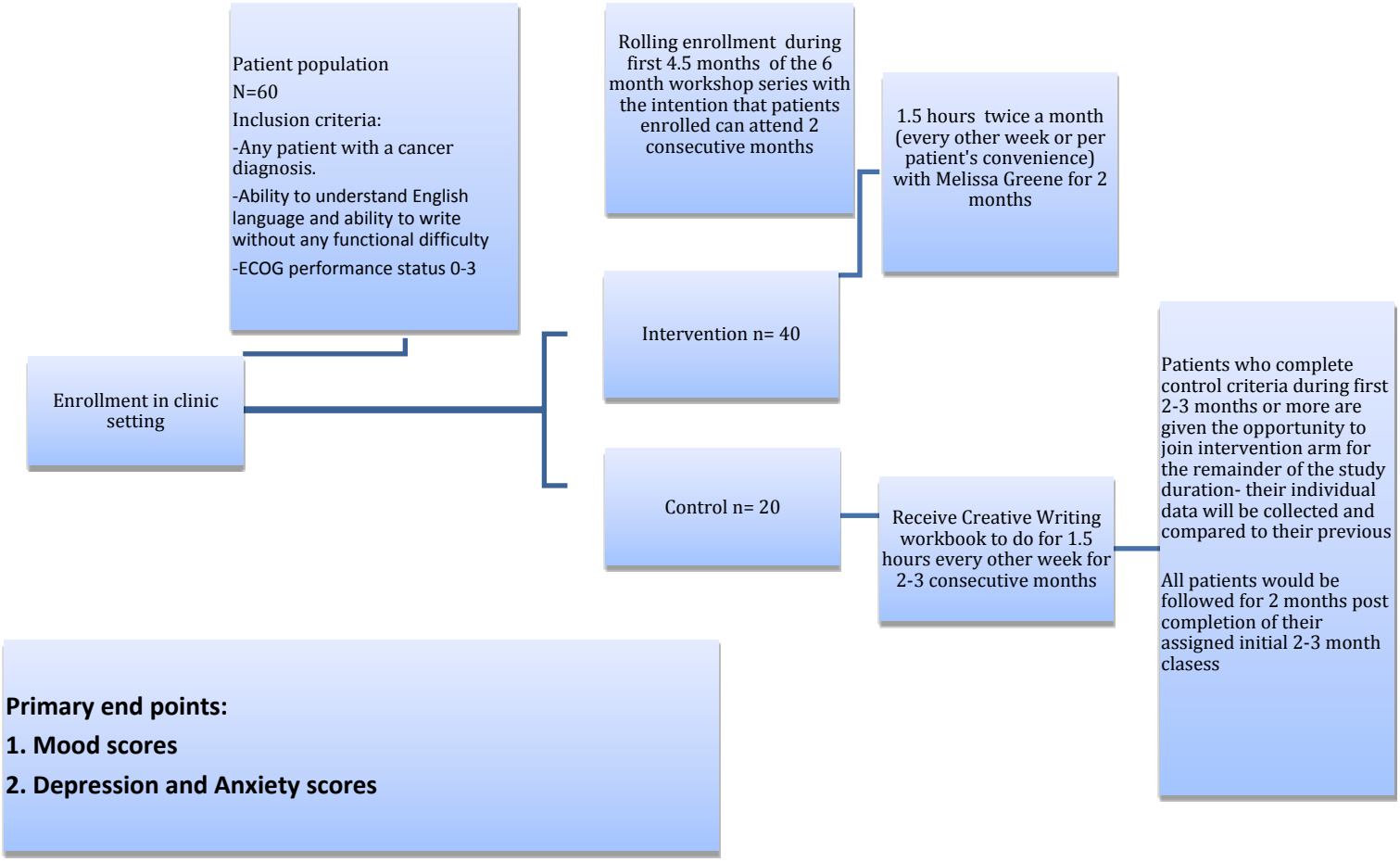
- Mood and symptoms before and after at least 2 sessions of intervention.
- Self-reported somatic symptoms pre and post intervention in two groups. We will use the Somatic Symptom Scale – 8 (SSM-8) to quantify somatic symptom burden.
- Difference in scores and symptoms between various genders.
- Difference in scores and symptoms between patients living alone versus with family.
- Difference in scores and symptoms in different cancer types.
- Difference in scores and symptoms versus number of classes attended.
- Differences between individual mood scores for patients in the control group who later switch to intervention group and attend at least one session
- Mood and symptom scores up to 2 months after completion of the study.

9.4.3 Exploratory endpoints

- Difference in number of emergency room visits and hospitalizations during study period between control and intervention group.
- Comparison of status of cancer (stable, progressing, in remission) between intervention and control group.

9.5 Study Schema

Figure 1:



10.0 STUDY PROCEDURES

10.1 Methods: After enrollment as above, co-investigators of this study or the assigned coordinator will be doing the consent. Patient will be randomized to intervention and control arms in a 2:1 ratio. The intervention arm will receive a dedicated workshop for one and a half hours every 2 weeks. We aim to start a 6 month long program with weekly creative writings workshops, and patient enrollment in the study will continue through the 1st 4.5 months of the 6 month period so that the last enrolled patient could complete 2 classes per month for two months. Each patient will be asked to attend at least two classes per month for a total of two months. These workshops will be held at Hershey Medical Center (HMC). At the initiation of the study along with consent we will collect baseline scores in both groups for each parameter as below. Somatic Symptom Burden (SSM-8 - Figure 2 - reference section), depression symptoms using PHQ-9 (Figure 3 – reference section), and anxiety symptoms using GAD-7 (Figure 4 – reference section) will be collected monthly and following intervention completion.

We will collect mood scores pre and post each session. We will use Emotional Thermometer Scale (EMS) from Dr. Alex J. Mitchell (Feb. 2010), diagram for scales is shown in figure 1. Please see supplementary index for a letter of permission to use from Dr. Mitchell. We will give the Thermometer scales and collect scores pre and post each session and also collect scores pre and post completion of entire course. Control group will do EMS on monthly basis along with other parameters. At the end of the study we will review all participants' medical charts to count view the number of emergency room visits and hospitalizations each participant experienced

during the study period. These will be further broken down in categories based on cancer related vs non-cancer related visits. We will also review their most current cancer disease status after completion of the workshops and categorize whether their status is considered to be stable, progressing, or in remission. Both groups will also receive follow up mood and symptom surveys twice a month for up to 2 months after completion of the participant's two to three month study period.

The control arm will receive a book (i.e., *Writing Down Bones* by Natalie Goldberg) on creative writing and asked to read and do writing activities for one and a half hours once every two weeks. At the completion of the two-month participation or completion of 4 sessions control patients will be given the opportunity to enroll in the creative writing workshops for the remainder of the study period of 6 months. We will collect scores from control arm through the same Emotion Thermometers Scale on a monthly basis. Pre-intervention scores will be obtained at the time of consent or one week prior to the planned start of session 1 for workshop (either in the clinic if possible or mail the score sheet to patients with an enclosed stamped envelope for return of the scales). Depending on participant preference, we can send them emails of the REDCAP surveys containing the same information at set intervals. A sample of the REDCAP surveys is included in supplementary materials. We will also send participants in the control arm a stamped return envelope on a monthly basis if not able to get score sheets in a clinic or over REDCAP, depending on patient convenience and preference. We will call the participants once every 3-4 weeks to check in on their progress. Please see a calendar at the end for details.

To assess for possible confounding results of patients participating in the concurrent exercise study, we will ask participants if they are also enrolled in the exercise study at enrollment and perform a subset analysis for patients who are in the exercise study. They will be randomized into either control or intervention group in the same manner as the other patients in the study. We will additionally include a section of the survey to ask about regular exercise (more than 30 minutes, three times a week) and do a subset analysis of these patients as well.

We will be collaborating with the Department of psychiatry at HMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who requests psychiatry follow up will be referred to Dr. Michael Hayes. If participants report the presence of suicidal ideation per question nine on the PHQ-9 [i.e., Thoughts that you would be better off dead or of hurting yourself in some way], they will be referred on an urgent basis to Dr. Michael Hayes or Dr. Aditya Joshi. In the event Dr. Hayes and/or Dr. Joshi are unavailable for follow-up, If any active suicidal thoughts are reported, participants will be referred directly to Emergency Department at Hershey Medical Center.

10.2 Clinical Covariates: Detailed clinical covariates will be obtained from questionnaires and medical record review including demographics (age, gender, race), cancer type and stage, psychiatric history, chemotherapy regimen and medication use.

10.3 Creative Workshop: Write from Heart: This workshop for cancer patients usually lasts one and a half hours and is broken into several parts. Usually beginning with inspirational quotes or passages from writings of respected authors, to shift mood and illuminated deeper thought and reflection. The next phase of the class consists of sharing a beautiful or whimsical object handed person to person or placed in the middle of the table to stimulate both curiosity and the senses. When participants are able to relax fully, in tranquil and focused surroundings the imagination easily transforms a bright polished stone or a glass heart with inner fractures into a metaphorical image. The technique of journaling is also encouraged in class, as a way to promote inner awareness to strengthen writing skills and to guide students to reach for their own comfort and consolation, when not in class. Within our setting, it is normal, though not mandatory that writing may lean toward the cancer experience. At the end of each series,

students would have learned how to trust their artistic instincts, connect more courageously with the world of their emotions and transform their fears and revelations about cancer into words on the page.

10.4 Emotional Thermometers Scale: The Emotion Thermometers tool is a simple rapid modular screening tool for detection and monitoring of emotional disorders in clinical practice. It was created by Dr. Alex J Mitchell and has a simple visual-analogue design. It is easy for most patients (including older people) to understand, quick to administer and simple to score. We have already got permission from Dr. Alex J Mitchell for royalty free usage of this scale for 2 years starting from Aug, 2016 till Aug 2018. We will be getting permission from him to extend the usage for an additional 1-2 years.

10.5 Survey of Depression and Anxiety symptoms: For anxiety, we will use Generalized Anxiety Disorder 7-item (GAD-7) validated scale by Robert Spitzer et al. For depression we will use Patient Health Questionnaire 9–item (PHQ-9) validated scale by Robert Spitzer et al. Both of these scales do not require any permission for reproduction, display, distribution or usage.

10.6 Control group activities: Participants randomized into the control group were asked to maintain their usual follow up while also reading a book on creative writing for one and a half hours every other week for three months, logging their activity for verification of task completion. Their mode scores will be measured as mentioned above.

12.0 Statistical Plan

12.1 Statistical Analysis Plan

Participants' basic demographic and baseline clinical measurements will be summarized using descriptive statistics. Those summarizations will be based on all patients as well as on patients within each group. This study has several main groups of outcome variables, which reflect several different domains of patient's mental health. The first group is the emotion thermometer (which has five sub-scales), the second is the somatic symptom scale (SSS-8), the third is the Patient Health Questionnaire (PHQ-9), and the fourth is the Generalized Anxiety Disorder questionnaire (GAD-7), which measures participants' anxiety. All the above outcome variable groups are based on questionnaires using Likert-scale questions to take the measurements, and each group may involve multiple sub-dimensions. Both the intervention group and the control group have repeated measures of the outcomes as shown in Figure 1. Graphical methods (such as the line plot of mean/SD values vs. time) will first be used to illustrate the mean and standard deviation values of the mode, depression, and anxiety scores through the time for both groups. These methods will help us detect the patterns of how the scores change over time (within-group change) and how the scores differ between groups. We will further use the linear mixed-effect model for repeated measures to analyze the within-group and between-group differences. Every sub-dimension will be analyzed individually, but we will also analyze the composite score for the dimensions. For the patients in the control group this study involves two stages (week 1-12 and week 13-20), and at the end of the 12^{th} week, they can join the intervention group. This setting will allow us to study the effect of the intervention on the control group alone. For this part of analyses, linear mixed-effect models will be set up with the stage serves as an indicator variable in the model. The comparison of outcome variables between certain time points will also be done using paired tests. We will further investigate the possible factors that might affect the change of outcome variables over time. The factors are gender, race, marital status, time from cancer diagnosis (first 3 months, 3-6 months, more than 6 months) and cancer stages. This part of analyses will mainly be focused on the intervention group and the above factors will be examined in the linear mixed-effect models. All analyses will be performed using statistical software SAS version 9.4 or higher (SAS Institute, Cary, NC, USA) and the statistical significance level to be used is 0.05.

12.2 Sample size considerations:

We plan to enroll a total of 60 participants in the study – with 40 participants in the intervention group and 20 participants in the control group (2:1 ratio). This sample size is mainly determined by the capacity of the workshop. With this sample size we are able to detect a standard effect size (the mean difference measured in common standard deviation) of 0.45 with at least 80% statistical power (using two-sample repeated measure ANOVA model, assuming four time-points, and the within-patient auto-correlation being 0.2) .

12.0 CONFIDENTIALITY

How will confidentiality of data be maintained? Check all that apply.

☒ Paper-based records will be kept in a secure location and only be accessible to personnel involved in the study.
☒ Use of a code number to label all research data
☒ Use of a study ID code linking list that will be maintained separate from the research data files on the HMC server (identifiers)
☒ Computer-based files will only be made available to personnel involved in the study through the use of access privileges and passwords.
☒ Prior to access to any study-related information, personnel will be required to sign statements agreeing to protect the security and confidentiality of identifiable information.
☒ Whenever feasible, identifiers will be removed from study-related information.
☐ A Certificate of Confidentiality will be obtained, because the research could place the subject at risk of criminal or civil liability or cause damage to the subject's financial standing, employability, or liability.
☐ A waiver of documentation of consent is being requested, because the only link between the subject and the study would be the consent document and the primary risk is a breach of confidentiality. (This is not an option for FDA-regulated research.)
☐ Precautions are in place to ensure the data is secure by using passwords and encryption, because the research involves web-based surveys.
☐ Audio and/or video recordings will be transcribed and then destroyed to eliminate audible identification of subjects.
☒ Other (specify): All data entered and stored in RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.6 Identifiers associated with data and/or specimens

Identifiers like dates and medical record numbers will be used.

12.7 Use of Codes, Master List

Use of a code linking list will be maintained separate from the research data files on the HMC server. All data entered and stored in HIPAA compliant RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.8 Storage of Data

All electronic files will be encrypted and/or password protected-EXCEL database, stored on a hard drive in locked HMC offices. Paper files will be stored in locked HMC offices/labs of the research team. These will be deleted/ shredded/destroyed at the end of study approval period. Information will be kept confidential and private and managed according to HIPAA guidelines.

12.9 Access to Data

Research team consisting of PI, Co-investigators, team participants, biostatisticians only will have access to the data

12.10 Transferring Data

Not applicable.

13.0 PRIVACY

Protected health information that will be obtained includes patient name, medical record number, and date of birth. This information will be kept in a password-protected database in Excel sheet, behind the Pennsylvania State University firewall as well as the RedCAp database (Co-PI has an active RedCap account). Identifying information will be stored in a separate portion of the database, linked to the analytical database through an alphanumeric code. Published data will only report aggregate, de-identified results.

14.0 DATA AND SAFETY MONITORING

All clinical information will be kept confidential, in a password-protected database or locked, secure location and managed according to HIPAA guidelines.

14.9 Periodic evaluation of data
Data evaluated at our site only.

14.10 Data that are reviewed
Data reviewed at our site only.

14.11 Method of collection of safety information
Data collected safely in a HIPAA compliant, encrypted database- Excel and REDCAP database. Access limited to PI and proxy PI and co-investigators only.

14.12 Frequency of data collection
Biweekly

14.13 Individual's reviewing the data
PI, co-investigators, and statistician from our institution only

14.14 Frequency of review of cumulative data
Every month

14.15 Statistical tests
As mentioned in detail in statistics section

14.16 Suspension of research
Unable to do workshops.

14.9 Multi-center Research
Not applicable

15.0 RISK/BENEFIT ASSESSMENT

15.1 Potential Study Risks

Minimal. It is an intervention to determine changes in mood scales before and after creative writing workshop, and we anticipate minimal risk (breach of confidentiality – measures taken as above) for patients regarding their underlying cancer or treatment.

15.2 Potential Study Benefits

Participants randomized to the intervention with creative writing workshops may experience an improvement in their mood. We suspect that patients may have better adherence to their cancer therapy, but we do not expect any effect on cancer overall.

15.3 Alternatives to Participation
Not participating.

16.0 SUBJECT COMPENSATION

No compensation will be provided. Coffee and light snacks will be served with every workshop.

17.0 NUMBER OF SUBJECTS: 60

17.1 Intervention Arm: 40
17.3 Control Arm: 20

21.0 RESOURCES AVAILABLE

18.1 Facilities and locations

Only the patients seen at Penn State Hershey Cancer Institute will be included. PI has been involved in numerous previous studies at this location.

18.5 PI Time devoted to conducting the research

The PI will be devoted to conducting the research. The Co-PIs will have dedicated research time during their training to conduct the research. The study team will meet at biweekly intervals to review progress and provide feedback.

18.6 Availability of medical or psychological resources:

We will be collaborating with the Department of psychiatry at PSHMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who request psychiatry follow up will be referred to Dr. Joshi.

18.7 Process for informing Study Team

The study team will meet at biweekly intervals to review the progress of the study and to provide feedback.

22.0 ADVERSE EVENT REPORTING:

Reporting Adverse Reactions and Unanticipated Problems to the Responsible IRB

The only possible adverse event or unanticipated problem is the loss of confidentiality, and as far as loss of confidentiality is concerned, in accordance with applicable policies of The Pennsylvania State University Institutional Review Board (IRB), the investigator will report, to the IRB, any observed or reported harm (adverse event) experienced by a subject or other individual, which in the opinion of the investigator is determined to be (1) unexpected; and (2) probably related to the research procedures. Harms (adverse events) will be submitted to the IRB in accordance with the IRB policies and procedures.

23.0 STUDY MONITORING, AUDITING AND INSPECTING

The investigator will permit study-related monitoring, audits and inspections by the Penn State quality assurance program office(s), IRB, the sponsor, and government regulatory bodies, of all study related documents (e.g., source documents, regulatory documents, data collection instruments, study data etc.). The investigator will ensure the capability for inspections of applicable study-related facilities (e.g. workshop room etc.).

21.0 REFERENCES:

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22.0 TABLES and FIGURES for the STUDY

Table 1: DEMOGRAPHICS

Participant	1	2	3	4	5	6	7…
Serial Number							
Alphaneumeric code							
Medical Record Number							
Gender							
Age							
Living Alone vs with family/caretaker							
Primary Cancer Type							
Cancer Stage							
ECOG Performance Status							
Enrolled in the Exercise Study							
Regular exercise on or off the exercise study- >30mins three times a week							
Current Treatment (Surgery, Radiation, Chemo)							
Disease status at completion of study (Stable, Progression, Remission)							
Psychiatric history (previous diagnoses or hospitalizations)							
Current Psychiatric Medications							

Figure 1: Emotion Thermometer Score (ETS)

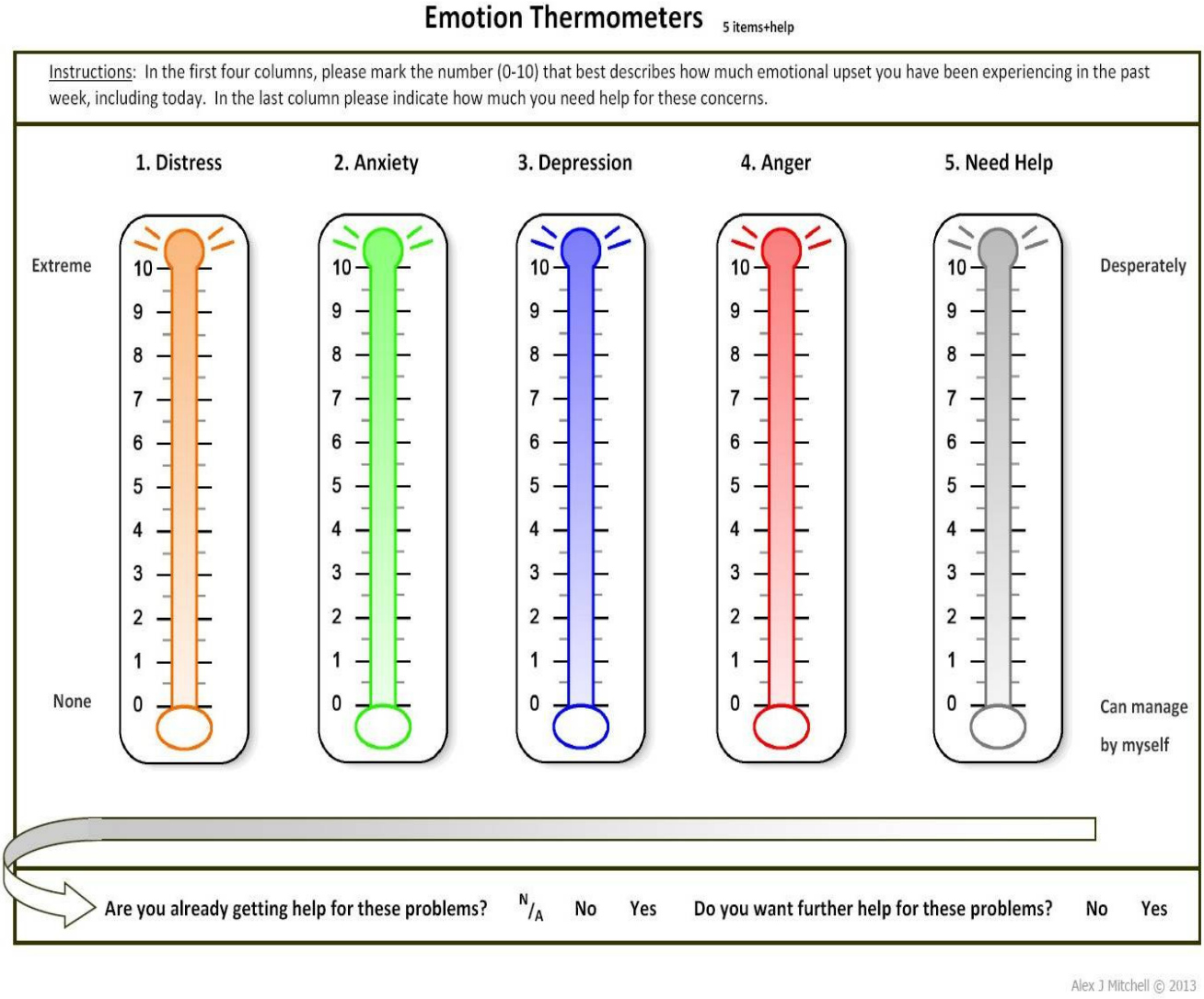

Figure 2: Somatic Symptom Scale

Somatic Symptom Scale – 8 (SSS-8)

During the past 7 days, how much have you been bothered by any of the following problems?	Not at all	A little bit	Somewhat	Quite a bit	Very much
Stomach or bowel problems	0	1	2	3	4
Back pain	0	1	2	3	4
Pain in your arms, legs, or joints	0	1	2	3	4
Headaches	0	1	2	3	4
Chest pain or shortness of breath	0	1	2	3	4
Dizziness	0	1	2	3	4
Feeling tired or having low engery	0	1	2	3	4
Trouble sleeping	0	1	2	3	4

Gierk B, Kohlmann S, Kroenke K, Spangenberg L, Zenger M, Brähler E, & Löwe B. (2014). The Somatic Symptom Scale–8 (SSS-8): A brief measure of somatic symptom burden. *JAMA Internal Medicine*, *174*(3), 399–407.

Figure-3

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

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Figure - 4

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T____ = ____ + ____ + ____)

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Dear Reviewers,

We wanted to bring your attention to 3 protocol changes we have completed that we describe below.

2. **Eligibility criteria** has been changed from cancer patients with new diagnosis or progression in the last three months from consent, to any patient with a cancer diagnosis.

   Rational: Difficulty with participant accrual.
   Although patients with new diagnosis or recent progression were originally chosen for this study due to our belief that they would most benefit from this intervention, we have found that after a month and a half of recruitment, we have only been able to recruit 15 out of our goal of 60 patients. We are concerned that we will not be able to meet our enrollment goal and thus want to expand to more patients. We believe that time from diagnosis is an important factor and will thus do a subset analysis at the completion of the study stratifying by time since diagnosis at enrollment (less than 3 months, 3-6 months, more than 6 months) to ensure that we still capture that information. We found that many individuals who we approached felt very overwhelmed by their diagnosis and frequency of other visits necessary for initial treatment of the diagnosis and were reluctant to add on another commitment. By expanding to patients further along from their diagnosis, we hope to be able to increase our study enrollment.

3. **Number of classes** patients are asked to attend has been decreased from 6 classes over 3 months to 4 classes over two months.

   Rational: Difficulty with participant accrual.
   In addition to the above stated reason, we found many individuals expressing reluctance to join the study due to concerns about the prolonged commitment to attending classes for three months. We felt that by decreasing the number to four sessions over the span of two months, attending 2 sessions per month, as opposed to six sessions, every other week over three months, may help us engage more participants, allowing them more flexibility with their schedule, particularly during the summer months when many individuals have vacation plans. Subsequently, we have noticed that once individuals start attending the sessions, they greatly enjoy them and want to continue, thus we believe that despite hanging the minimum number of classes we request participants attend, we may still be able to collect data for individual patients beyond 2 months.

4. **The Enrollment Period** has been extended from 3 months to 4 months after initiation of study to comply with change in number of classes requested from participants.

   Rational: Difficulty with participant accrual.
   Our enrollment period is based on the last day individuals can enroll and still complete the requested number of classes. Previously, for a 6-month class schedule with a request for 3 months of participation, we would enroll for three months. By changing the requested participation to 2 months, we can extend the enrollment period by 1 additional month while still having individuals be able to complete the necessary number of classes.

5. Brochure added

   Rational: Difficulty with participant accrual.
   We have received multiple requests from potential participants as well as physicians interested in sending their patients to us for a brochure that they can have to help them learn more about the study and contact us more easily. We believe that the addition of this brochure may significantly help increase our accrual rate, especially by decreasing effort on the part of other providers.

   Detailed description of changes

The following changes have been made in the document "**HRP-591 Protocol for Human Subjects Research – Study 00008646 Creative Writing Study – IRB – Amendment 1 protocol v2 tracked edits 6.12**" – you can see these same changes on the Tracked Changes version of the protocol as well:

4) **Section 7.3 Key Inclusion Criteria**, second bullet point – removed description of criteria for new diagnosis and replaced with "Any patient with a cancer diagnosis"
5) **Section 7.7 Subject Recruitment,** first paragraph, sentence 2
   - removed "newly diagnosed"
6) **Section 9.2 Design**, first paragraph, sentence 3
   - changed three to "four-month period"
   - added "2-3" month workshops
7) **Section 9.3 Study Duration,** second paragraph starting with "Length of participants.."
   - Changed from 3 to 2-6 months for length of participation
8) **Section 9.5 Study Schema, Figure 1:**
   - edited study schema to reflect enrollment for 4 months and that intervention and control groups will participate for at least two month
   - Edited inclusion criteria to include any patient with a cancer diagnosis
9) **Section 10.1 Methods**
   First paragraph:
   - added "Each patient will be asked to attend at least two classes per month for a total of two months."
   - Changed 3 month study period to 2 month study period
   - Changed enrollment from 1st 3 months to 1st 4 months
   Second paragraph, last sentence:
   - Added "two to three" for length of study period
   Third paragraph:
   - Sentence 2 – changed three to "two" month participation and replaced 6 with "4" sessions.
10) **Section 11.1 Statistical Plan**, paragraph 1
   - Added "time from cancer diagnosis (first 3 months, 3-6 months, more than 6 months)" as additional factor that will be used in the subset analysis

The following changes have been made in the document "**Consent for Creative Writing Study 00008646– Amendment 1 V2 Clean 6.12**" – you can see these same changes on the Tracked Changes version of the consent as well:

1) **Section 1. Why is this research study being done?**
   - Changed last part of first sentence to "because you have a cancer diagnosis"

2) **Section 2. What will happen in this research study?**
   - Third paragraph: Changed number of workshops to 4 and changed duration of participation to two total months, with at least two class attended per month
   - Changed study figure to reflect above stated change

3) **Section 6. How long will I take part in this research study?**
   - Changed number of classes to 4 and duration of study to 2 months

HRP-591 - Protocol for Human Subject Research

Application for Review of Human Research: IRB Protocol Summary

Protocol Title: Effect of Group Led Creative Writing on Mood in Cancer Patients

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Version Date:
March 8th, 2018

Clinicaltrials.gov Registration #: N/A

If you need help…

University Park and other campuses:	College of Medicine and Hershey Medical Center:
Office for Research Protections Human Research Protection Program The 330 Building, Suite 205UniversityPark, PA 16802-7014 Phone: 814-865-1775 Fax: 814-863-8699 Email: irb-orp@psu.edu	Human Subjects Protection Office 90 Hope Drive, Mail Code A115, P.O. Box 855 Hershey, PA 17033 (Physical Office Location: Academic Support Building Room 1140) Phone:717-531-5687 Fax number: 717-531-3937 Email: irb-hspo@psu.edu

Instructions for using this protocol template:

9. Add this completed protocol template to your study in CATS IRB (http://irb.psu.edu) in the "Basic Information" section. Links to Penn State's protocol templates are available in the same location where they are uploaded, and their use is required.
10. This template is provided to help investigators prepare a protocol that includes the necessary information needed by the IRB determine whether a study meets all criteria for approval.
11. There may be sections in this template that do not apply. If a section or question does not apply to the research study in question, provide the response "Not Applicable."
12. **DO NOT TYPE IN THE GRAY BOXES.** All guidance language appears in gray boxes and these boxes MUST be deleted from the final version of the protocol prior to upload to CATS IRB.

Table of Contents

1.0 PROTOCOL TITLE

1.1 Effect of Group Led Creative Writing on Mood in Cancer patients.

1.2 Brief Title: Effect of Creative Writing on Mood in Cancer Patients.

2.0 STUDY SPONSORSHIP

2.1 Funding Sponsor: Penn State Hershey Cancer Institute
Fifty Shades of Pink (Breast Cancer Endowment Fund)

2.2 Primary Sponsor: Penn State Hershey Cancer Institute

3.0 PROTOCOL ABSTRACT

The primary purpose of this study is to determine whether creative writing in newly diagnosed cancer patients and those with recent progression in their disease will have a positive impact on their mental health. Using a randomized controlled trial approach, emotion thermometers will be employed to evaluate participants' responses on a number of domains, such as anxiety, depression, despair, and anger along with a series of survey questions to monitor changes in depressive and anxiety symptoms. Open-ended survey questions will be used to capture how a creative writing intervention impacts participants' experience of their illness. Melissa Greene's *Write from the Heart* program focuses more on creative writing rather than cancer focused topics. Patients in the intervention arm will complete – one and a half hour group sessions every two weeks over the span of 3 months. Participants in the active control arm will be provided a book (i.e., *Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hrs every 2 weeks for a period of 2-3 months.

4.0 OBJECTIVES

4.1 Primary Objectives:

- Mental wellness before and after intervention in the intervention and control groups. A validated Emotional Thermometer Scales will be used to predict changes in parameters reflecting participants' mental health pre- and post-intervention. Survey questions focused on symptoms of depression and anxiety will be used to monitor for changes in mental wellness pre- and post-intervention.

4.2 Secondary Objectives:

- Comparison of mood scores, depression and anxiety symptoms versus frequency of attendance in the intervention arm.
- Comparison of somatic symptom burden between intervention and control group.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms after workshop between genders.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between patients living alone versus with family.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms between various cancer types.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who have previously attended a creative writing class versus those who have not.
- Difference in mood scores, depression symptoms, anxiety symptoms, and somatic symptoms in individuals who completed control group activity and then enrolled in the workshops and attended at least one session.
- Comparison of the frequency of emergency room visits and hospitalizations between intervention and control group during the study period.

- Comparison of cancer status (stable, progressing, in remission) between intervention and control group.

5.0 BACKGROUND

5.1 Scientific Background and Gaps

Cancer is a life-threatening, feared diagnosis and is a source of great distress in patients. Hence in addition to treating cancer, one must address the emotional well-being of patients.

Creative activity has a significant history in providing a wide range of psychological and physiological benefits for cancer survivors (King et al., 2012). When individuals experience a stressful life event or crisis, the higher verbal functions in the cerebral cortex become less accessible (Hass-Cohen, 2008.) Therefore, patients who face such stressful life events of cancer are often left without words to describe their experiences of feelings (Green & Young, 2015). Findings from Green and Young (2015) suggest that creative visual expression, engaging both in an individual and the therapeutic setting, offered an opportunity for young adult survivors to express their emotions from deep within their bodies. It created self-understanding and a sense of healing.

In another study by Bolton (2007) patients indicated that they found the therapeutic writing process beneficial. For example, one participant narrated, “It made it less traumatic than it might have been otherwise.” Creative writing has been recognized to explore and express personal thoughts, feelings, and experiences. Lau Tsu (1973) showed that writing facilitated patients’ ability to discover what they thought felt and remembered. Therapeutic creative writing enhanced their awareness of and ability to express issues to which attention and focus are required. (Esterhing BA et al., 1999)

There is a substantial area of agreement that language, narrative storytelling, forms an essential element in the construction of a coherent identity, sense of self and connectedness to others, and therefore, it is a powerful tool in creative therapy (Smyth, 1998; Wright & Chung, 2001). Roe and Davidson (2005) argue that processes of re-authoring one’s life story are actually integral components of the recovery process itself. A study by Stanton (2002) of breast cancer patients prompted to write about their cancer experience showed a significant decrease in self-reported somatic symptoms and medical appointment visits for cancer-related morbidities three months after participation in the study. A follow-up study by Stanton (2013) encouraged breast cancer patients to create personal websites to chronicle their experience and to communicate with their social network. This study showed significant improvement in positive mood and depressive symptoms after 6 months, particularly in patients undergoing medical therapy at that time. These studies further support that the act of narrative story telling can improve patient wellbeing.

Furthermore, King et al. (2012) suggest that writing can contribute to repair of symbolic functioning and contribute to the development of personal identity. The researchers concluded that, of all the creative arts, writing is least dependent on equipment and/or special environments. Writing workshops are probably better provided by professional writers than by mental health professionals. When health professionals provide activities such as a writing workshop, there is a risk that identification with the illness is reinforced. On the other hand, when a professional writer provides a similar activity, it is the participant’s identity as a writer that is reinforced, rather than their identity as a person with an illness. (King et al., 2012)

Moreover, there is emerging consensus in the UK and USA that there might be advantages if writing therapy is received from facilitators who themselves are trained writers and can work in collaboration with health care professionals. (Hunt & Sampson, 1998; Mc Loughlin, 2004).

5.2 Previous Data

We conducted a pilot study to determine feasibility whether cancer patients can be enrolled, randomized and retained for four weeks for creative writing classes (Feasibility was defined as 50% of our enrolled patients on intervention arm (IA) could attend at least 2 classes). We anticipated enrolling 45 patients over the period of 2 months with randomization into 2 arms: IA and standard of care (SOC). “Write from the Heart” a series of creative writing workshops (CWW) were conducted on IA. Subjects in IA had four, 2-hour weekly CWW whereas SOC arm did not receive any session. We used validated Emotional Thermometer Scales (ETS), ranging 0 (best)-10 (worst), to predict changes in a number of parameters reflecting patient’s mental health pre and post intervention. ETS has five dimensions (distress, anxiety, depression, anger and need help), which are all continuous variables. Due to time constraints we were not able to accrue the desired number of patients. A total of 16 patients were accrued in 1 month period -11 in IA and 5 in SOC. 7 out of 11 (63%) patients enrolled in IA attended at least 75% of classes. Comparisons were made using two-sample T-tests. Although sample size was small, IA did show a decreasing pattern on Total Emotion Score (TES), particularly in depression and anxiety scores (See table 1 and figure 1, 2). For each visit, post-class scores were lower than pre-class scores. We observed that it is feasible for cancer patients to attend focused workshops geared towards mental health wellbeing. IA showed a trend towards mood improvement, although was not shown to be statistically significant which may be attributed to the small sample size. Having shown the feasibility of such a study, we hope to increase the sample size and include more specific methods for quantifying mood improvement in the patient groups. In addition, after reviewing the suggestions (post completion of the study) from the patients who attended these sessions on the study, we concluded that 1.5hours of class twice a month is feasible and helpful for patients.

Variable	Categories	SOC	IA
Baseline TES	Mean (SD)	5.8 (4.3)	6.5 (6.2)
Baseline TES	Median (Range)	5 (0-10)	5 (0-20)
Final TES	Mean (SD)	5.7 (5.1)	0.3 (0.5)
Final TES	Median (Range)	7 (0-10)	0 (0-1)

Table 1: Mean and Median TES at baseline and after intervention in SOC versus IA.

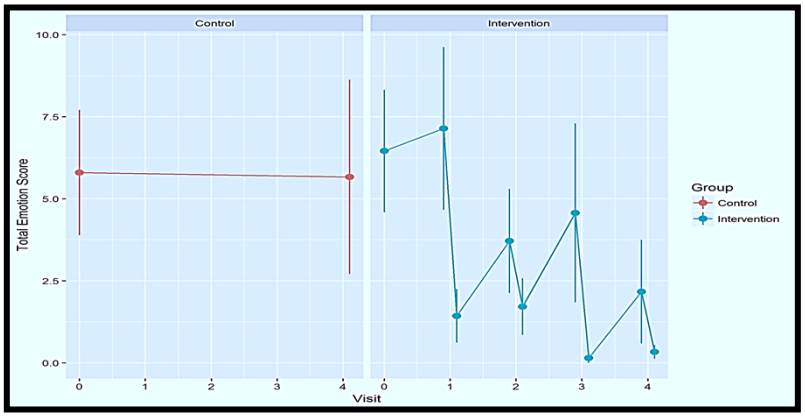


Fig 1: Total Emotions Scores before and after each visit.

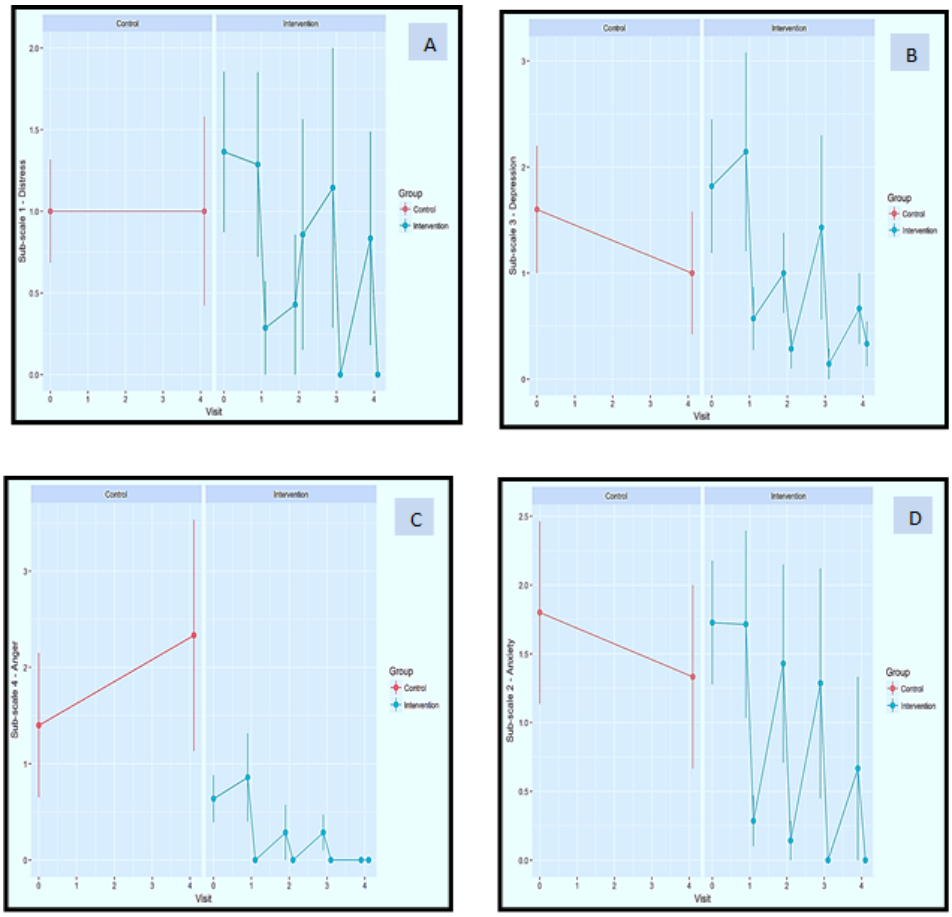


Fig 2, A-D: Emotions Scores before and after each visit; A-D: A-Distress, B-Depression, C-Anxiety, D- Anger

6.0 RATIONALE AND HYPOTHESIS

6.1 RATIONALE:

Cancer generates an increased sense of distress than non-malignant diseases with poor prognoses (Mishel et al., 1984). Persistent mental distress for prolonged periods leads to anxiety and depression. The rate of depression in cancer patients is thought to be up to three times higher than in the general population (Linden et al., 2012). Depression leads to a poorer quality of life (QOL) and affects patient outcomes, with depression resulting in higher rates of mortality in cancer (Colleoni et al., 2000, Pinquart et al., 2010). A meta-analysis revealed that minor or major depression increases mortality rates by up to 39%, and that patients displaying even few depressive symptoms may be at a 25% increased risk of mortality (Satin et al., 2009). The impact of mood and mental wellbeing on cancer progression is considered important by doctors and patients, with >70% of oncologists and 85% of patients believing that mood affects the progression of cancer (Lemon et al., 2004). Our previous data as mentioned before shows that creative writing is feasible and needs to be further studied to understand the effect of group therapy with focused workshop in newly diagnosed or patients with recent recurrence. In addition, we observed that the emotional thermometer scale was not enough to capture the mood of the patients. For example, some patients felt significantly better after attending these sessions and were able to cope with their symptoms but the emotional scale did not reflect that benefit.

6.2 HYPOTHESIS:

This study aims to look at the impact of participating in creative writing workshop group *Write from the Heart,* on cancer patients' emotional well-being. Keeping previous studies in mind, a

professional writer will conduct the workshops, which will enhance the participant's ability to express and enhance their awareness. We anticipate that participation in the workshop will result in a positive effect on the parameters being studied, enabling patients to cope with their illness/cancer better. We hypothesize that group sessions of creative writing workshop could be better than individual sessions.

7.0 CHARACTERISTICS OF THE STUDY POPULATION

7.1 Target Population

Adults with a new diagnosis of cancer, at any stage OR progression of cancer- within three months of enrollment.

7.2 Accrual

We aim to accrue 60 eligible patients over a time span of 2 months at the Milton S. Hershey Medical Center.

7.3 Key Inclusion Criteria

- Adult >20 years of age
- Any patient with a cancer diagnosis.
- Ability to understand English language and ability to write without any functional difficulty
- ECOG performance status 0-3

7.4 Key Exclusion Criteria

- Inability to give informed consent
- Severe psychiatry illness (e.g., uncontrolled depression, schizophrenia or psychosis)
- Severe cognitive impairment
- Pregnant females
- Inability to write or understand English

7.5 Vulnerable Populations

None

7.6 Populations vulnerable to undue influence or coercion

If a patient who works for or has some affiliation to Pennsylvania State University happens to be in the potential participant pool, we will verbally stress to him/her that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

7.7 Subject Recruitment

We will recruit participants from our outpatient cancer clinics at HMC (Hershey Medical Center). We will create a pamphlet describing our study briefly and study staff contacts, then distribute in all cancer clinics. This will be given to every cancer patient at any stage, with recurrence, or with progression at HMC. We will also send emails to physicians and nurses at outpatient cancer clinics at HMC for study description and our contact details. If patients are interested, we (study staff) will conduct initial eligibility screening and obtain informed consent from patients to initiate study follows up.

10.0 CONSENT PROCESS AND DOCUMENTATION

10.1 Consent Process

10.1.1 Obtaining Informed Consent

Physician-Investigators of the study will identify patients from their clinic and patients will be approached to participate in the study. Study staff will then discuss the study in detail to make the patient aware of the workshops, intervention, and time commitment involved with the study. If the patient is interested, study staff will answer any remaining questions and obtain written informed consent at the patient's clinic visit with their primary oncologist.

8.1.2 Coercion or Undue Influence during Consent

If a patient affiliated with Pennsylvania State University happens to be in the potential participant pool, we will inform them that their participation is voluntary and will not influence her care or any outcomes related to Penn State.

8.1.3 Waiver of Authorization

Not applicable

8.6 Consent Documentation

8.6.1 Written Documentation of Consent

Study staff members will assist with data and consent collection. If the patients are unable or not competent to give consent, they will not be enrolled in the study.

8.7 Consent – Other Considerations

8.7.1.1 Non-English Speaking Subjects
Not included.

8.7.1.2 Cognitively Impaired Adults
Not included.

8.7.1.3 Subjects who are not yet adults (i.e., infants, children, teenagers)
Inclusion criteria: greater than 20 years of age

9.0 STUDY DESIGN

9.1 Phase

Phase II

9.2 Design

The focus of this study is to determine the difference in mental health parameters following the participation of cancer patients in a creative writing workshop. Participants will be randomized within strata formed by cancer type in order to assure that these potentially important confounding variables are balanced across groups. Patients will be enrolled on a rolling basis over a three-month period, allowing patients in intervention arm to participate in 2-3 months workshops (workshops would be held once every 2 weeks). Patients in control arm will be provided a book (*Writing Down Bones* by Natalie Goldberg) about creative writing and will be asked to do activities for 1.5 hours every 2 weeks. After three months, control group participants can join creative writing workshops at their discretion for the remaining period for writing workshops. Both group members will receive follow up surveys twice a month for two months at the completion of the participant's three-month study period.

9.3 Study Duration

Estimated time to enroll all subjects = 3-5 months (Patients will start being enrolled after IRB approval and we will continue the enrollment up to 3 months from the time the 1st class starts for the intervention group)
Length of a participant's participation = 2 - 6 months; Follow up after participant's completion of classes = 2 months

9.4 Endpoints:

9.4.1 Primary endpoints:

- Mood scores before (at baseline) and after intervention (after completion of entire sessions - this may vary as some patients may not be able to complete six sessions). A validated Emotional Thermometer Scales will be used to predict changes in parameters pre and post-intervention.
- Severity of depression and anxiety symptoms before and after intervention between two groups. Validated Depression and Anxiety questionnaires will be used to predict changes, the PHQ-9 and GAD-7 respectively.

9.4.2 Secondary endpoints:

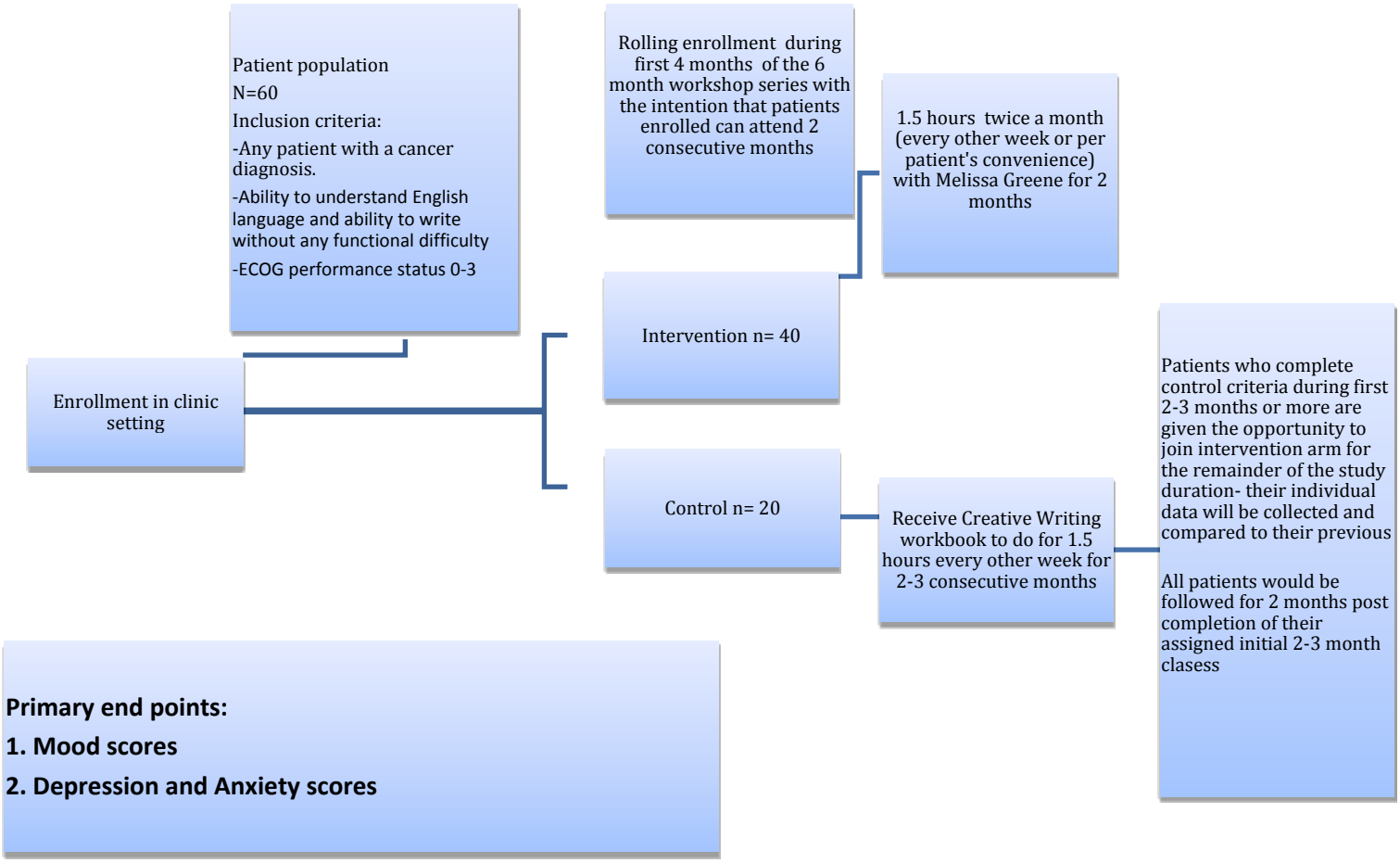
- Mood and symptoms before and after at least 2 sessions of intervention.
- Self-reported somatic symptoms pre and post intervention in two groups. We will use the Somatic Symptom Scale – 8 (SSM-8) to quantify somatic symptom burden.
- Difference in scores and symptoms between various genders.
- Difference in scores and symptoms between patients living alone versus with family.
- Difference in scores and symptoms in different cancer types.
- Difference in scores and symptoms versus number of classes attended.
- Differences between individual mood scores for patients in the control group who later switch to intervention group and attend at least one session
- Mood and symptom scores up to 2 months after completion of the study.

9.4.3 Exploratory endpoints

- Difference in number of emergency room visits and hospitalizations during study period between control and intervention group.
- Comparison of status of cancer (stable, progressing, in remission) between intervention and control group.

9.5 Study Schema

Figure 1:



10.0 STUDY PROCEDURES

10.1 Methods: After enrollment as above, co-investigators of this study or the assigned coordinator will be doing the consent. Patient will be randomized to intervention and control arms in a 2:1 ratio. The intervention arm will receive a dedicated workshop for one and a half hours every 2 weeks. We aim to start a 6 month long program with weekly creative writings workshops, and patient enrollment in the study will continue through the 1st 4 months of the 6 month period so that the last enrolled patient could complete the 2 month study period of every two week workshops. Each patient will be asked to attend at least two classes per month for a total of two months. These workshops will be held at Hershey Medical Center (HMC). At the initiation of the study along with consent we will collect baseline scores in both groups for each parameter as below. Somatic Symptom Burden (SSM-8 - Figure 2 - reference section), depression symptoms using PHQ-9 (Figure 3 – reference section), and anxiety symptoms using GAD-7 (Figure 4 –reference section) will be collected monthly and following intervention completion.

We will collect mood scores pre and post each session. We will use Emotional Thermometer Scale (EMS) from Dr. Alex J. Mitchell (Feb. 2010), diagram for scales is shown in figure 1. Please see supplementary index for a letter of permission to use from Dr. Mitchell. We will give the Thermometer scales and collect scores pre and post each session and also collect scores pre and post completion of entire course. Control group will do EMS on monthly basis along with other parameters. At the end of the study we will review all participants' medical charts to count view the number of emergency room visits and hospitalizations each participant experienced

during the study period. These will be further broken down in categories based on cancer related vs non-cancer related visits. We will also review their most current cancer disease status after completion of the workshops and categorize whether their status is considered to be stable, progressing, or in remission. Both groups will also receive follow up mood and symptom surveys twice a month for up to 2 months after completion of the participant's two to three month study period.

The control arm will receive a book (i.e., *Writing Down Bones* by Natalie Goldberg) on creative writing and asked to read and do writing activities for one and a half hours once every two weeks. At the completion of the two-month participation or completion of 4 sessions control patients will be given the opportunity to enroll in the creative writing workshops for the remainder of the study period of 6 months. We will collect scores from control arm through the same Emotion Thermometers Scale on a monthly basis. Pre-intervention scores will be obtained at the time of consent or one week prior to the planned start of session 1 for workshop (either in the clinic if possible or mail the score sheet to patients with an enclosed stamped envelope for return of the scales). Depending on participant preference, we can send them emails of the REDCAP surveys containing the same information at set intervals. A sample of the REDCAP surveys is included in supplementary materials. We will also send participants in the control arm a stamped return envelope on a monthly basis if not able to get score sheets in a clinic or over REDCAP, depending on patient convenience and preference. We will call the participants once every 3-4 weeks to check in on their progress. Please see a calendar at the end for details.

To assess for possible confounding results of patients participating in the concurrent exercise study, we will ask participants if they are also enrolled in the exercise study at enrollment and perform a subset analysis for patients who are in the exercise study. They will be randomized into either control or intervention group in the same manner as the other patients in the study. We will additionally include a section of the survey to ask about regular exercise (more than 30 minutes, three times a week) and do a subset analysis of these patients as well.

We will be collaborating with the Department of psychiatry at HMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who requests psychiatry follow up will be referred to Dr. Michael Hayes. If participants report the presence of suicidal ideation per question nine on the PHQ-9 [i.e., Thoughts that you would be better off dead or of hurting yourself in some way], they will be referred on an urgent basis to Dr. Michael Hayes or Dr. Aditya Joshi. In the event Dr. Hayes and/or Dr. Joshi are unavailable for follow-up, If any active suicidal thoughts are reported, participants will be referred directly to Emergency Department at Hershey Medical Center.

10.2 Clinical Covariates: Detailed clinical covariates will be obtained from questionnaires and medical record review including demographics (age, gender, race), cancer type and stage, psychiatric history, chemotherapy regimen and medication use.

10.3 Creative Workshop: Write from Heart: This workshop for cancer patients usually lasts one and a half hours and is broken into several parts. Usually beginning with inspirational quotes or passages from writings of respected authors, to shift mood and illuminated deeper thought and reflection. The next phase of the class consists of sharing a beautiful or whimsical object handed person to person or placed in the middle of the table to stimulate both curiosity and the senses. When participants are able to relax fully, in tranquil and focused surroundings the imagination easily transforms a bright polished stone or a glass heart with inner fractures into a metaphorical image. The technique of journaling is also encouraged in class, as a way to promote inner awareness to strengthen writing skills and to guide students to reach for their own comfort and consolation, when not in class. Within our setting, it is normal, though not mandatory that writing may lean toward the cancer experience. At the end of each series,

students would have learned how to trust their artistic instincts, connect more courageously with the world of their emotions and transform their fears and revelations about cancer into words on the page.

10.4 Emotional Thermometers Scale: The Emotion Thermometers tool is a simple rapid modular screening tool for detection and monitoring of emotional disorders in clinical practice. It was created by Dr. Alex J Mitchell and has a simple visual-analogue design. It is easy for most patients (including older people) to understand, quick to administer and simple to score. We have already got permission from Dr. Alex J Mitchell for royalty free usage of this scale for 2 years starting from Aug, 2016 till Aug 2018. We will be getting permission from him to extend the usage for an additional 1-2 years.

10.5 Survey of Depression and Anxiety symptoms: For anxiety, we will use Generalized Anxiety Disorder 7-item (GAD-7) validated scale by Robert Spitzer et al. For depression we will use Patient Health Questionnaire 9–item (PHQ-9) validated scale by Robert Spitzer et al. Both of these scales do not require any permission for reproduction, display, distribution or usage.

10.6 Control group activities: Participants randomized into the control group were asked to maintain their usual follow up while also reading a book on creative writing for one and a half hours every other week for three months, logging their activity for verification of task completion. Their mode scores will be measured as mentioned above.

13.0 Statistical Plan

13.1 Statistical Analysis Plan

Participants' basic demographic and baseline clinical measurements will be summarized using descriptive statistics. Those summarizations will be based on all patients as well as on patients within each group. This study has several main groups of outcome variables, which reflect several different domains of patient's mental health. The first group is the emotion thermometer (which has five sub-scales), the second is the somatic symptom scale (SSS-8), the third is the Patient Health Questionnaire (PHQ-9), and the fourth is the Generalized Anxiety Disorder questionnaire (GAD-7), which measures participants' anxiety. All the above outcome variable groups are based on questionnaires using Likert-scale questions to take the measurements, and each group may involve multiple sub-dimensions. Both the intervention group and the control group have repeated measures of the outcomes as shown in Figure 1. Graphical methods (such as the line plot of mean/SD values vs. time) will first be used to illustrate the mean and standard deviation values of the mode, depression, and anxiety scores through the time for both groups. These methods will help us detect the patterns of how the scores change over time (within-group change) and how the scores differ between groups. We will further use the linear mixed-effect model for repeated measures to analyze the within-group and between-group differences. Every sub-dimension will be analyzed individually, but we will also analyze the composite score for the dimensions. For the patients in the control group this study involves two stages (week 1-12 and week 13-20), and at the end of the 12^{th} week, they can join the intervention group. This setting will allow us to study the effect of the intervention on the control group alone. For this part of analyses, linear mixed-effect models will be set up with the stage serves as an indicator variable in the model. The comparison of outcome variables between certain time points will also be done using paired tests. We will further investigate the possible factors that might affect the change of outcome variables over time. The factors are gender, race, marital status, time from cancer diagnosis (first 3 months, 3-6 months, more than 6 months) and cancer stages. This part of analyses will mainly be focused on the intervention group and the above factors will be examined in the linear mixed-effect models. All analyses will be performed using statistical software SAS version 9.4 or higher (SAS Institute, Cary, NC, USA) and the statistical significance level to be used is 0.05.

13.2 Sample size considerations:

We plan to enroll a total of 60 participants in the study – with 40 participants in the intervention group and 20 participants in the control group (2:1 ratio). This sample size is mainly determined by the capacity of the workshop. With this sample size we are able to detect a standard effect size (the mean difference measured in common standard deviation) of 0.45 with at least 80% statistical power (using two-sample repeated measure ANOVA model, assuming four time-points, and the within-patient auto-correlation being 0.2) .

12.0 CONFIDENTIALITY

How will confidentiality of data be maintained? Check all that apply.

☒ Paper-based records will be kept in a secure location and only be accessible to personnel involved in the study.
☒ Use of a code number to label all research data
☒ Use of a study ID code linking list that will be maintained separate from the research data files on the HMC server (identifiers)
☒ Computer-based files will only be made available to personnel involved in the study through the use of access privileges and passwords.
☒ Prior to access to any study-related information, personnel will be required to sign statements agreeing to protect the security and confidentiality of identifiable information.
☒ Whenever feasible, identifiers will be removed from study-related information.
☐ A Certificate of Confidentiality will be obtained, because the research could place the subject at risk of criminal or civil liability or cause damage to the subject's financial standing, employability, or liability.
☐ A waiver of documentation of consent is being requested, because the only link between the subject and the study would be the consent document and the primary risk is a breach of confidentiality. (This is not an option for FDA-regulated research.)
☐ Precautions are in place to ensure the data is secure by using passwords and encryption, because the research involves web-based surveys.
☐ Audio and/or video recordings will be transcribed and then destroyed to eliminate audible identification of subjects.
☒ Other (specify): All data entered and stored in RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.11 Identifiers associated with data and/or specimens

Identifiers like dates and medical record numbers will be used.

12.12 Use of Codes, Master List

Use of a code linking list will be maintained separate from the research data files on the HMC server. All data entered and stored in HIPAA compliant RedCap database (the proxy PI has an active RedCap account) and will be used to transfer data in a deidentified format only.

12.13 Storage of Data

All electronic files will be encrypted and/or password protected-EXCEL database, stored on a hard drive in locked HMC offices. Paper files will be stored in locked HMC offices/labs of the research team. These will be deleted/ shredded/destroyed at the end of study approval period. Information will be kept confidential and private and managed according to HIPAA guidelines.

12.14 Access to Data

Research team consisting of PI, Co-investigators, team participants, biostatisticians only will have access to the data

12.15 Transferring Data

Not applicable.

13.0 PRIVACY

Protected health information that will be obtained includes patient name, medical record number, and date of birth. This information will be kept in a password-protected database in Excel sheet, behind the Pennsylvania State University firewall as well as the RedCAp database (Co-PI has an active RedCap account). Identifying information will be stored in a separate portion of the database, linked to the analytical database through an alphanumeric code. Published data will only report aggregate, de-identified results.

14.0 DATA AND SAFETY MONITORING

All clinical information will be kept confidential, in a password-protected database or locked, secure location and managed according to HIPAA guidelines.

14.17 Periodic evaluation of data
Data evaluated at our site only.

14.18 Data that are reviewed
Data reviewed at our site only.

14.19 Method of collection of safety information
Data collected safely in a HIPAA compliant, encrypted database- Excel and REDCAP database. Access limited to PI and proxy PI and co-investigators only.

14.20 Frequency of data collection
Biweekly

14.21 Individual's reviewing the data
PI, co-investigators, and statistician from our institution only

14.22 Frequency of review of cumulative data
Every month

14.23 Statistical tests
As mentioned in detail in statistics section

14.24 Suspension of research
Unable to do workshops.

14.9 Multi-center Research
Not applicable

15.0 RISK/BENEFIT ASSESSMENT

15.1 Potential Study Risks

Minimal. It is an intervention to determine changes in mood scales before and after creative writing workshop, and we anticipate minimal risk (breach of confidentiality – measures taken as above) for patients regarding their underlying cancer or treatment.

15.2 Potential Study Benefits

Participants randomized to the intervention with creative writing workshops may experience an improvement in their mood. We suspect that patients may have better adherence to their cancer therapy, but we do not expect any effect on cancer overall.

15.3 Alternatives to Participation
Not participating.

16.0 SUBJECT COMPENSATION

No compensation will be provided. Coffee and light snacks will be served with every workshop.

17.0 NUMBER OF SUBJECTS: 60

17.1 Intervention Arm: 40
17.4 Control Arm: 20

24.0 RESOURCES AVAILABLE

18.1 Facilities and locations

Only the patients seen at Penn State Hershey Cancer Institute will be included. PI has been involved in numerous previous studies at this location.

18.8 PI Time devoted to conducting the research

The PI will be devoted to conducting the research. The Co-PIs will have dedicated research time during their training to conduct the research. The study team will meet at biweekly intervals to review progress and provide feedback.

18.9 Availability of medical or psychological resources:

We will be collaborating with the Department of psychiatry at PSHMC - Dr. Aditya Joshi, Dr. Michael Hayes, and Dr. Erika Saunders. Any subject who request psychiatry follow up will be referred to Dr. Joshi.

18.10 Process for informing Study Team

The study team will meet at biweekly intervals to review the progress of the study and to provide feedback.

25.0 ADVERSE EVENT REPORTING:

Reporting Adverse Reactions and Unanticipated Problems to the Responsible IRB

The only possible adverse event or unanticipated problem is the loss of confidentiality, and as far as loss of confidentiality is concerned, in accordance with applicable policies of The Pennsylvania State University Institutional Review Board (IRB), the investigator will report, to the IRB, any observed or reported harm (adverse event) experienced by a subject or other individual, which in the opinion of the investigator is determined to be (1) unexpected; and (2) probably related to the research procedures. Harms (adverse events) will be submitted to the IRB in accordance with the IRB policies and procedures.

26.0 STUDY MONITORING, AUDITING AND INSPECTING

The investigator will permit study-related monitoring, audits and inspections by the Penn State quality assurance program office(s), IRB, the sponsor, and government regulatory bodies, of all study related documents (e.g., source documents, regulatory documents, data collection instruments, study data etc.). The investigator will ensure the capability for inspections of applicable study-related facilities (e.g. workshop room etc.).

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22.0 TABLES and FIGURES for the STUDY

Table 1: DEMOGRAPHICS

Participant	1	2	3	4	5	6	7…
Serial Number							
Alphaneumeric code							
Medical Record Number							
Gender							
Age							
Living Alone vs with family/caretaker							
Primary Cancer Type							
Cancer Stage							
ECOG Performance Status							
Enrolled in the Exercise Study							
Regular exercise on or off the exercise study- >30mins three times a week							
Current Treatment (Surgery, Radiation, Chemo)							
Disease status at completion of study (Stable, Progression, Remission)							
Psychiatric history (previous diagnoses or hospitalizations)							
Current Psychiatric Medications							

Figure 1: Emotion Thermometer Score (ETS)

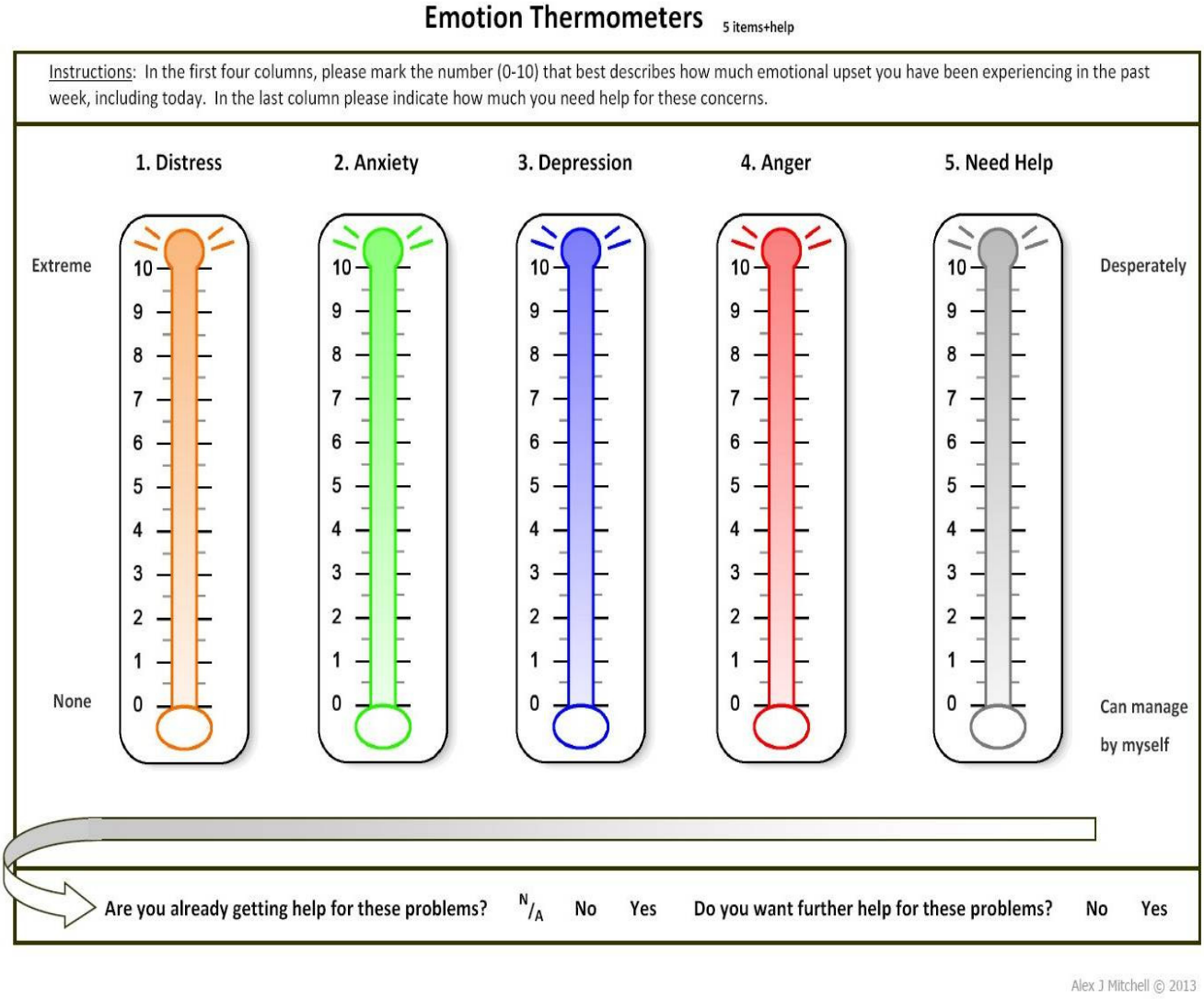

Figure 2: Somatic Symptom Scale

Somatic Symptom Scale – 8 (SSS-8)

During the past 7 days, how much have you been bothered by any of the following problems?	Not at all	A little bit	Somewhat	Quite a bit	Very much
Stomach or bowel problems	0	1	2	3	4
Back pain	0	1	2	3	4
Pain in your arms, legs, or joints	0	1	2	3	4
Headaches	0	1	2	3	4
Chest pain or shortness of breath	0	1	2	3	4
Dizziness	0	1	2	3	4
Feeling tired or having low engery	0	1	2	3	4
Trouble sleeping	0	1	2	3	4

Gierk B, Kohlmann S, Kroenke K, Spangenberg L, Zenger M, Brähler E, & Löwe B. (2014). The Somatic Symptom Scale–8 (SSS-8): A brief measure of somatic symptom burden. *JAMA Internal Medicine*, *174*(3), 399–407.

Figure-3

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

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Figure - 4

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T____ = ____ + ____ + ____)

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