




The Calamity Prayer:

*Computational Spiritual Support
as a Whole-Human Centered
Approach to Healing*

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Outline:

1. My personal story of grief & trauma
2. Research story of spirituality & tech
3. Back to my personal story of healing..
...and hope for the future

Content Warning:

Mental illness, grief, suicide,
intimate personal disclosure



nature (2002)

**Incremental training increases
the plasticity of the auditory
space map in adult barn owls**

Brie A. Linkenhoker & Eric I. Knudsen

*Department of Neurobiology, Stanford University School of Medicine, Stanford,
California 94305-5125, USA*







The Calamity Prayer



So, I found this online journal.

[About Us](#)[How It Works](#)[Start A Site](#)[Advice & Inspiration](#)[Search](#)

APR

22

2015

April 22, 2015

Journal Entry by [REDACTED] — April 22, 2015

Welcome to the Caring Bridge site for our friend and sister in Christ, Chris.

I haven't done this before, so if you have any advise for me, let me know!

In March, Chris became sick with abdominal pain and it was discovered that she had a mass on her uterus. She was refered to a specialist in St Paul to remove the tumor at the end of March. The cancer was identified as an Endometrial Stromal Sarcoma. Within a week, she was back in the hospital with complications from the surgery and it was noted that there were some nodules on the base of her lungs. She had further imaging, and biopsy showed that the sarcoma had spread to lungs making this a stage 4 high grade type of cancer. Her doctor was quite concerned because she had 2 separate CT's of the abdomen and pelvis (which includes the base of the lungs) about 3 weeks apart. The second scan showing nodules which were not there previously.

Endometrial Stromal Sarcoma is very (and I mean VERY) rare. It is a cancer of the smooth muscle and can occur in different parts of the body. According to her physician, this type of cancer is not curable at this stage/grade. It is a very aggressive cancer and resistant to chemotherapy. She was offered 2 chemotherapy agents to try to slow growth and spreading of the cancer.

I read it & wept.

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[REDACTED]: Dear Christine, I always enjoyed talking with you at church events you have a great sense of humor. We continue to pray for you. Thank you for being such a beautiful person. God Bless you <3

Heart • Reply • 6/9/15

[REDACTED]: God bless you, Chris. Praying for a beautiful journey.

Heart • Reply • 6/9/15

[REDACTED]: Chris, into His hands. God bless and love you always. Thanks for being a friend.

Heart • Reply • 6/9/15

[REDACTED]: Chris, I will miss you more than words can ever express, my dear, dear friend. May your guardian angel lead you to Paradise. May you hear the sweet words of Our Lord welcoming you home.

Heart • Reply • 6/9/15



[REDACTED]: Chris, you and your family have been in my thoughts and prayers. Thank you for all the fun nights of playing cards. Every time I will play with everyone, I will think of you knowing you will be there watching us. They will never be the same without you! 😊 XO

Heart • Reply • 6/9/15



© Sarah Andersen

I've dealt with:

- Mental illness since 11yo
- (Religious Trauma Syndrome?)
- PTSD following assault in 2012
- Mom's death in 2015
- And so much more!!

So, obviously, I turned to Reddit for support.



I was 29 when
I started grad
school.

[Part 2: *The Research Story*]

CaringBridge
& University of Minnesota

Research Collaboration
since 2015

Sustained User
Engagement

Receiving support, expressive
writing, providing support
(Ma, Smith, et al. 2017)

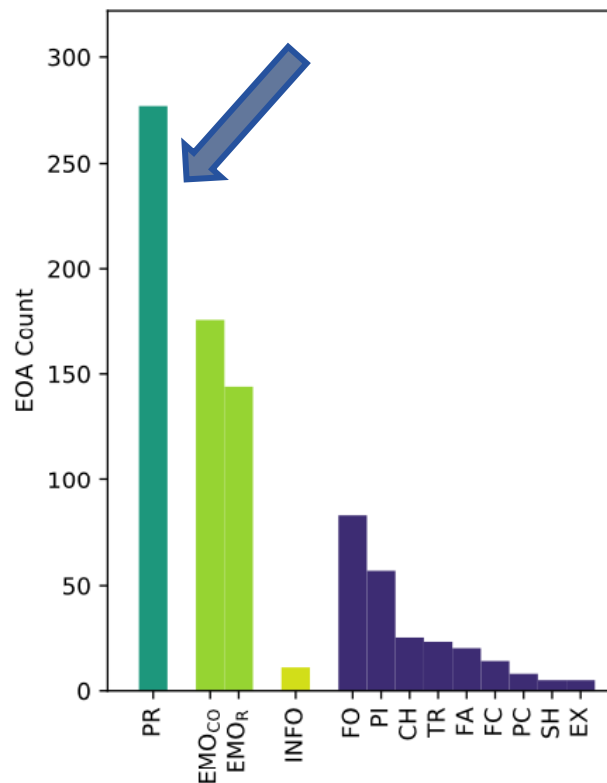
34%

Cancer patient deaths
(Ma, Smith, et al. 2017)

Support
Exchange

Prayer > emotional >
instrumental >>> informational
(Smith, et al. 2020)

Expressions of Appreciation (Comp. + Content Analysis)



Ratings (Surveys)

Support Type	P/CG ($m = 576$)	FFA ($n = 415$)	Mann-Whitney U
Prayer Support (PR)	$M = 3.18$ $SD = 1.14$	$M = 3.39$ $SD = 1.01$	$U=130617$ $p = 0.005^{**}$ $CLES=0.546$ ($d=0.16$)
Remote Emotional Support (EMO _R)	$M = 2.87$ $SD = 1.10$	$M = 3.10$ $SD = 0.94$	$U=132131.5$ $p = 0.003^{**}$ $CLES=0.553$ ($d=0.19$)
Instrumental Support (INSTR)	$M = 2.78$ $SD = 1.19$	$M = 2.73$ $SD = 1.24$	$U=121706.5$ $p = 0.609$ $CLES=0.509$ ($d=0.03$)
Co-located Emotional Support (EMO _{CO})	$M = 2.51$ $SD = 1.14$	$M = 2.70$ $SD = 1.15$	$U=130975$ $p = 0.008^{**}$ $CLES=0.548$ ($d=0.17$)
Informational Support (INFO)	$M = 2.26$ $SD = 1.23$	$M = 1.88$ $SD = 1.37$	$U=138153.5$ $p < 0.001^{***}$ $CLES=0.578$ ($d=0.27$)

A black and white photograph of an elderly person's hand, showing wrinkled skin and a simple ring on the ring finger. A heart-shaped pendant hangs from a chain around the neck, resting on the hand. The pendant contains a small, framed portrait of a young child. The background is dark and out of focus.

Prayer?
...Really?



Spirituality:

the aspect of humanity that refers to the way individuals seek and express **meaning and purpose**, and the way they experience their **connectedness** to the moment, to self, to others, to nature, and to the significant or sacred.

[Puchalski, 2009]



How can we reconcile
human spirituality
with **modern technology**
design?

What is **spiritual**
support, and how
can we build
systems that help
people *experience*
it?

PARTICIPATORY DESIGN WORKSHOPS

**CARINGBRIDGE
USERS**

(*n* = 11)

**SPIRITUAL &
RELIGIOUS LEADERS**

(*n* = 6)

**HEALTHCARE
WORKERS**

(*n* = 11)

**CARINGBRIDGE
EMPLOYEES**

(*n* = 10)

What is your group's definition
spiritual support?

Someone, something, or an exper.
acting as a catalyst to connect
a person in need to a higher
source - their perception of a loving
spiritual source.

1. Structured Conversation

2. Tech Brainstorms



3. Rapid Prototyping

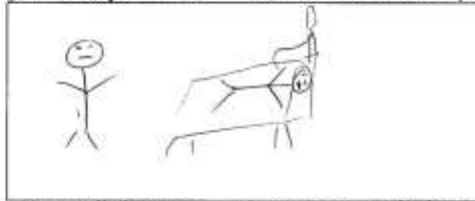
Sketching & Making



This child doesn't know what to think, seeing their parent lying in a hospital bed.



They open their phone and the AI therapist begins to ask them questions & talk with them.



They tell their parent how they are feeling, talking through some breakthroughs.



Spiritual support is an underlying dimension that can be expressed through *any* other form of social support.

Instrumental



Prayer



Emotional



Informational



Network



Esteem



Spiritual
support
forms a
triadic
relationship.

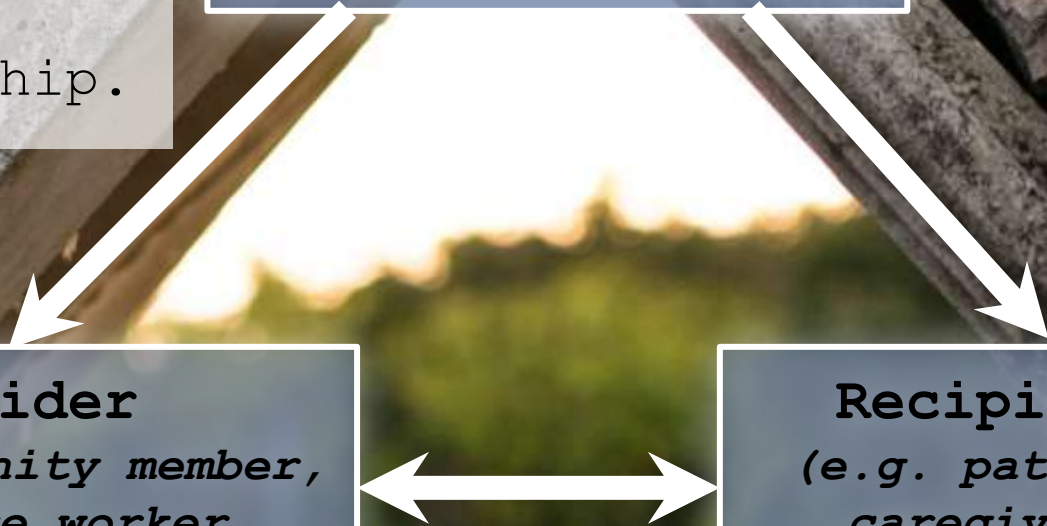
The Sacred or
Significant

Provider

(e.g. *community member,
healthcare worker,
spiritual leader*)

Recipient

(e.g. *patient,
caregiver,
family member*)



IDEATION RESULTS

62%

COMMUNITY &
HUMAN DIGNITY

22%

SOUND &
TEXT

17%

PRACTICAL
RESOURCES

12%

VR / AR

10%

ARTIFICIAL
INTELLIGENCE

7%

PHYSIOLOGY

Care mApp

[UI/UX]



NETWORK VIZ &
MOBILIZATION

ADVANCE CARE CONFIGURATION

3 touches
[UI/UX]



AI-ASSISTED COMMUNICATION



54%

"don't know what to write"

[upcoming work]

AI-ASSISTED COMMUNICATION

*Patients and caregivers love hearing from you;
add a comment to show your support.*

(Current Prompt)

Post a Comment

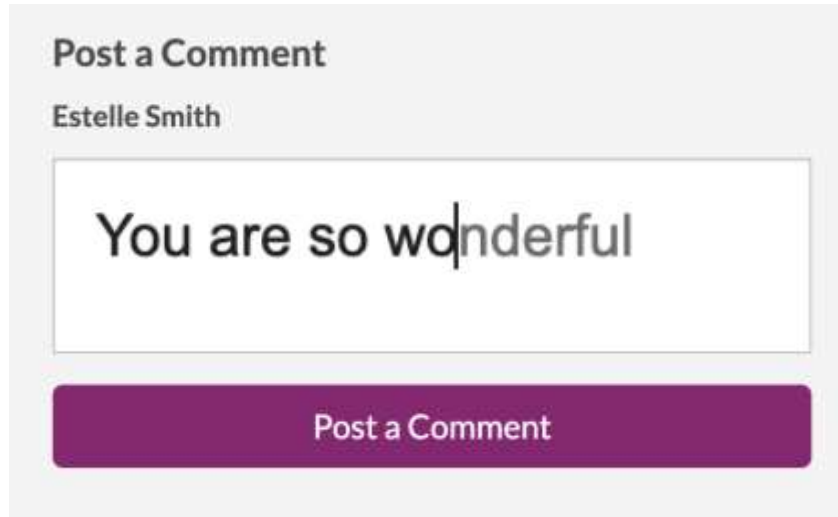
Estelle Smith

Post a Comment

**Personalized
training resources**

AI-ASSISTED COMMUNICATION

Nudge , nudge...



A screenshot of a web form titled "Post a Comment". Below the title is the name "Estelle Smith". There is a text input field containing the text "You are so wonderful" with a cursor at the end of the word "wonderful". Below the input field is a purple button with the text "Post a Comment".

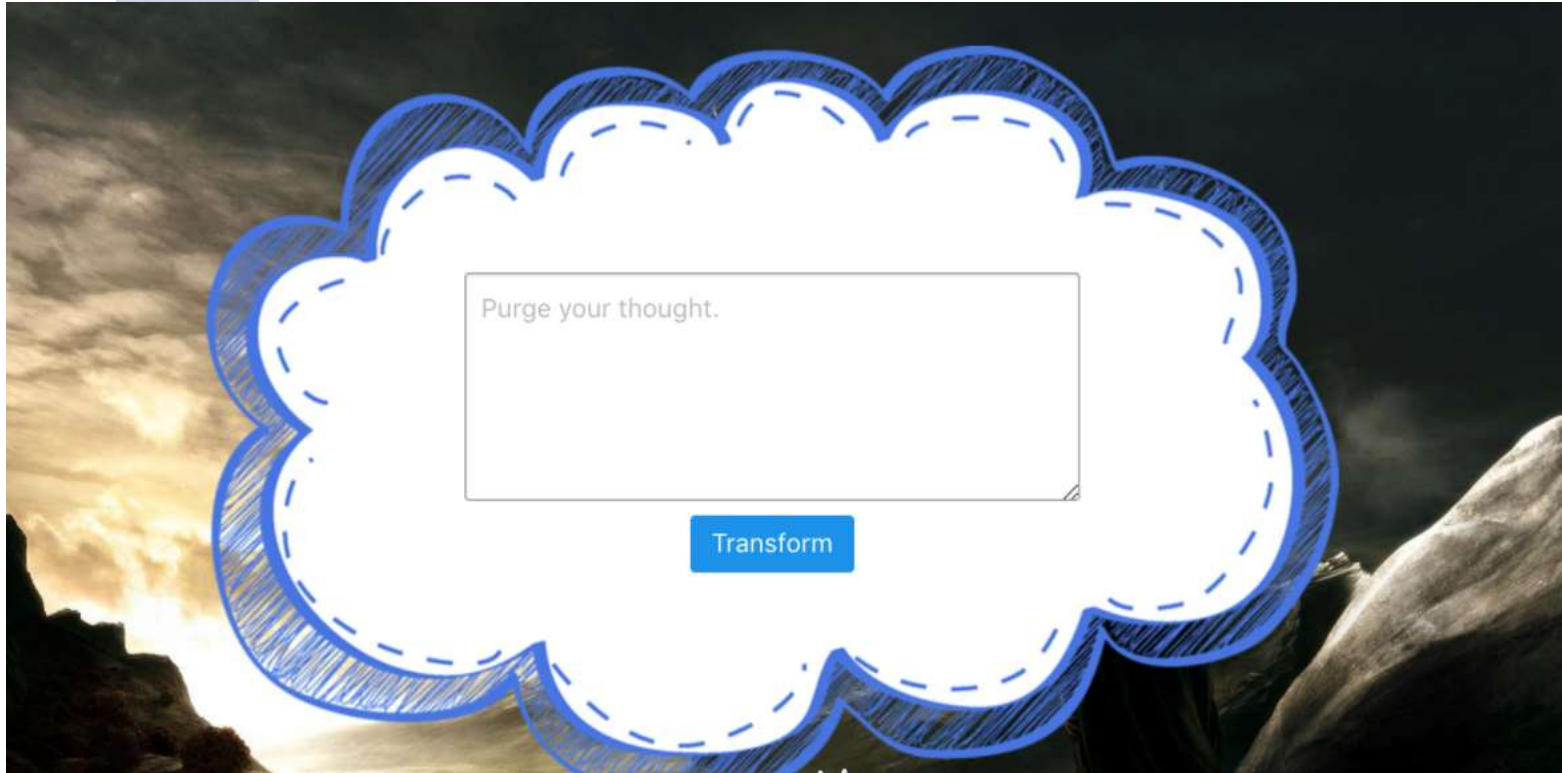
Help with:

- *what to say
- *what NOT to say
- *scriptures
- *prayers
- *meditations
- *etc.

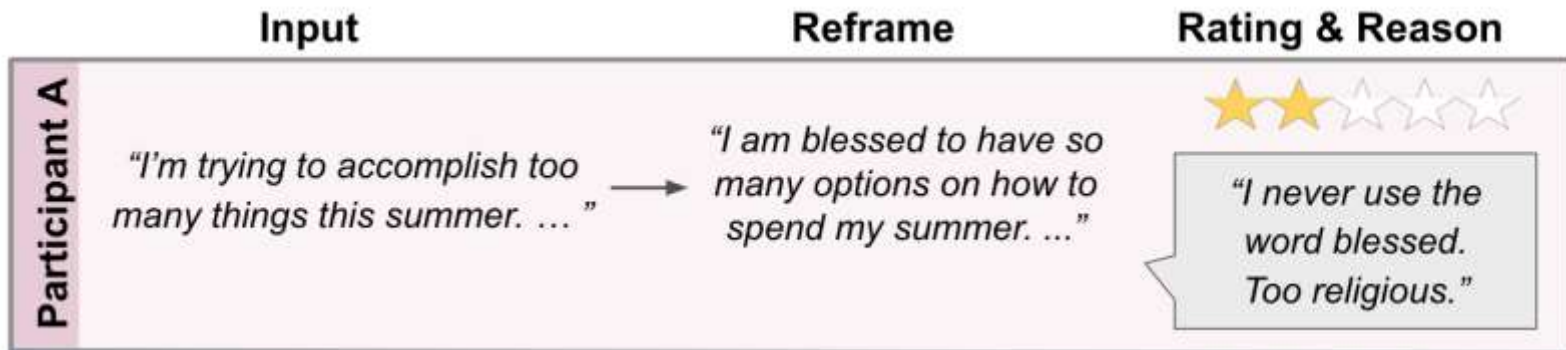
FLIP*DOUBT

"Cognitive Reappraisal"

AI-ASSISTED
COMMUNICATION



Smith, C. Estelle, et al. "Effective Strategies for Crowd-Powered Cognitive Reappraisal Systems: A Field Deployment of the Flip* Doubt Web Application for Mental Health." CSCW (2021): 1-37.



KEY RESULTS

"Bursts"
of Positivity

Decrease in anxiety (GAD-7)


Context impacts
reframe quality

AI can help us
to help each other

Create
awareness

...that meaningfully disrupts
negative thought patterns

Speaking of **mental illness**...

Back to the difficult personal stuff 

[Part 3]



r/ptsd

Search Redd



PTSD

Joined



r/ptsd

Posts

Wiki

Survey thread

Self-help& self-care

/r/ptsd policies

posting guidelines



Create Post



Hot



New



Top

...



161



PINNED BY MODERATORS

Posted by u/Nymunariya automod tinkerina 8 months ago 2

Resource

Self Help and Self Care Resources

50 Comments Award Share Save ...



9



Posted by u/Nymunariya automod tinkerina 3 days ago

Meta

r/ptsd is looking to bring on some additional mods

1 Comment Award Share Save ...

About Community

...

We are a supportive, respectful community for discussion and links of interest for people who have PTSD or have friends, family members, or partners with PTSD. NOTE: We can not diagnose you with PTSD here. If you think you have PTSD, please see a licensed professional.

74.6k

Members

83

Online



Created Sep 3, 2008

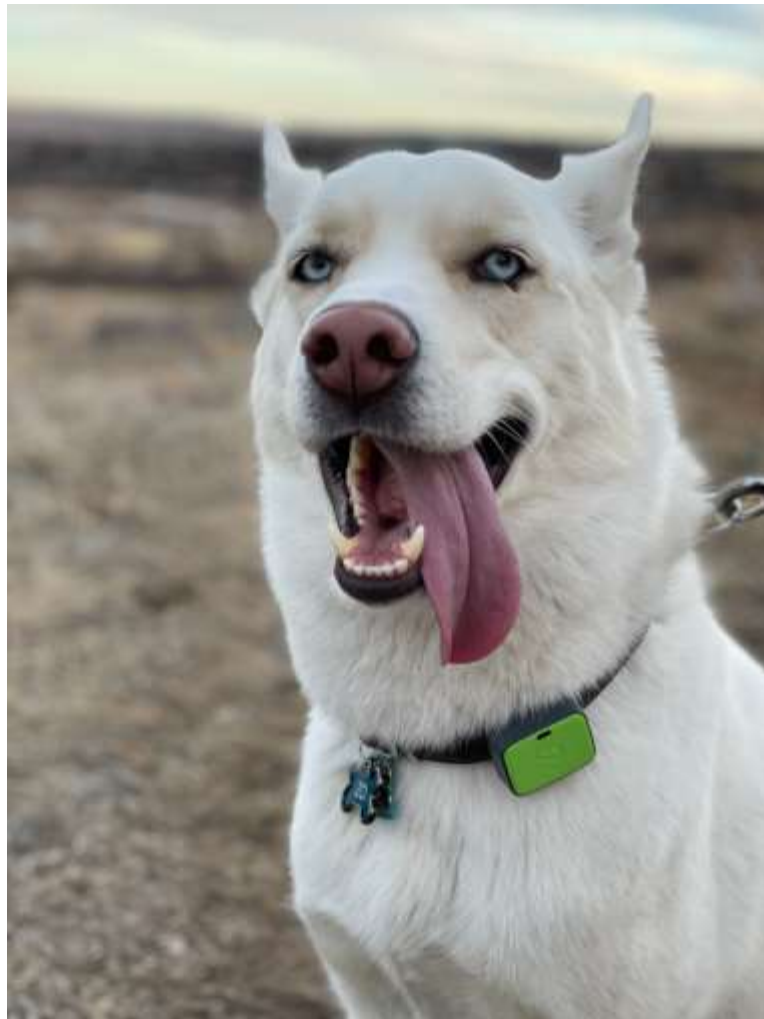
Create Post



Eldorado Canyon

April 11, 2022

two things
stopped me








uchealth

Log out


E Estelle ▾

 Messages

 Test results

 Billing summary

Bookmark

 Move to trash

You
Apr 11, 10:34 AM

E


I went to eldorado canyon and tried to jump this morning, but i couldn't do it.

We **need** to do better.

And we **can** do better.

Expand *sociotechnical* models of delivery
for evidence-based, continually accessible,
spiritual & mental healthcare.

(Especially via communities of **peers**,
supported by ethically designed **algorithms**.)

More Broadly: Re-design social media to
support the **brighter** parts of our nature. 



Spiritual Plasticity

The Calamity Prayer






My Calamity Prayer

When all the world's a bloody mess:

Deep breathes.

If possible, god(s) {or whatever} bless.

C.Estelle Smith, PhD


 @EstelleSmithPhD



Thank you for listening
to my story.

Q&A

C. Estelle Smith, PhD

 @EstelleSmithPhD



Assistant Professor,
Colorado School of Mines

Golden, Colorado

Offer Signed, 5/20/22

C.Estelle Smith, PhD



@EstelleSmithPhD

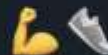
“Woebot”



I want to go climb a cliff in eldorado canyon and jump off of it.

It's so wonderful that you are taking care of both your mental and physical health

It's certainly no easy feat, so I hope you feel very proud of yourself



OPEN QUESTIONS

How can we design interfaces, algorithms, and support mechanisms that honor spirituality within specific spiritual or religious communities, *v.s.* within broader contexts and communities where beliefs can differ extremely?

How can we ensure that technologically-mediated forms of spiritual support do not diminish the authenticity, meaningfulness, and quality of supportive interactions and relationships?

When is technology the right solution for spiritual support? And when is the better solution to turn all the technology *off*?

How can technology support spiritual flourishing and adaptation, rather than repressive or traumatizing adherence to beliefs that are no longer serving an individual?

How can we collaborate with medical communities to integrate clinically-validated evidence and best practices for the provision of spiritual care in sociotechnical systems that extend within and beyond clinical settings?

What are the roles of AI and automation in the provision of spiritual support? How can we design these effectively and ethically?

"I don't work out enough, I should be in better shape"

Direct Negation

"I work out a lot and that is why I am in fantastic shape!"



Agency

"I can start working out more and get in better shape!"




Acceptance

"I love my body, it is mine and does great things for me."



Generic Instructions:

Rewrite this thought in a way that is more positive.




***"I don't work out
enough, I should
be in better shape"***

Acceptance

***"I love my
body, it is mine
and does great
things for me."***

Personalized Instructions:

Please reframe this thought by encouraging this person towards **acceptance** of the situation--but with a more positive spin.



***"I don't work out
enough, I should
be in better shape"***

**Algorithmic
seed phrase**

***I might not be working
out as much as I'd like,
but [USER INPUT]***

Scaffolded text:
"Acknowledge main concern"

Avleen, Kaur, C. Estelle
Smith, and Loren Terveen.
"Sway Together, Stay
Together: Visualizing
Spiritual Support
Networks Through the
SoulGarden Prototype."
CSCW 2021.

**Oratio Imperata
For Deliverance from Calamities**

Almighty Father, we raise our hearts to You
in gratitude for the wonders of creation
of which we are part,
for Your Providence in
and for Your Wis
the course of

We acknowledge ou
and the rest o
We have not been good
We have confused Your com

The environment is made t
and now we reap the harvest o

Global warming is t
floods, volcan
and other natur
in increasing numb

We turn to You, o
and beg forgiven
We ask that we, ou
our hard earne
be spared from the t
natural and s

We beseech You
to grow into responsible st
and generous neighb

Amen.

Prayer in a Time of Disaster

**BE MERCIFUL TO ME, O GOD, BE
MERCIFUL TO ME, FOR IN YOU MY
SOUL TAKES REFUGE; IN THE
SHADOW OF YOUR WINGS I WILL
TAKE REFUGE, TILL THE STORMS OF
DESTRUCTION PASS BY.**

Psalms 57:1-2

Guideposts

THIANS 4:8-9

Guideposts