

Table of source of pain, type of pain (mental or physical), and corresponding treatment.

	Pain type	Pain source	Treatment
1.)	Mental	Emotional source	Talk therapy
2.)	Mental	Brain chemical imbalance	Psychiatric
3.)	Physical	Physical: example, broken leg	Physical cast

Example: Barn of farmer burned down: suffering has already occurred. potential for increased future suffering exists: suffering and pain in numerator; more suffering will start to increase over time. Pain is

Given the equation for suffering, a doctor can focus on reducing the pain or increasing the self-compassion. The relevant equation is:

$$suffering = \frac{pain}{selfcomp}$$

For the broken leg or the brain chemical imbalance, pain sources 2, and 3 of the table, the typical mode of attack is to address the pain directly and try and reduce it. The doctor may or may not be compassionate when administering drugs or fixing the physical ailment. The result is that the pain is removed/reduced and thus so is the suffering. The appropriate equation and how it is used is quite simple. When discussing the mental pain where the source is emotional, pain source 1, the analysis becomes far more complicated and much more interesting.

These equations apply when potential suffering has yet to occur, and the emotion suffering, has to be on the left-hand side of the equation (according to the equations relief would have to be infinite).

Emotions (all are mental here) of Friend 1 (F1)

$$F1suffering = \frac{F1pain}{F1selfcomp}$$

Friend 2 feels Friend 1's pain and feels her suffering.

$$F1suffering \Rightarrow F2suffering = \frac{F1pain}{F1selfcomp}$$

Where \Rightarrow implies some type of physical interaction such as a conversation or holding of hand. Friend 2 then has compassion for Friend 1, such as encourages her with words to have self-compassion. Note that Friend 2's feeling of suffering depends closely on what Friend 1 has for feeling of suffering. When Friend 1's suffering decreases, Friend 2 also has reduced suffering.

What is felt as compassion by Friend 2's, is transferred by means of some physical interaction (here talk) into Friend 1's emotions as self-compassion. The representative equation is:

$$F2comp ==> F1selfcomp(fromF2)$$

The compassion from Friend 2 has added to Friend 1's self-compassion and adding it to $F1selfcomp$ in the first equation results in:

$$F1suffering = \frac{F1pain}{F1selfcomp + F1selfcomp(form F2)}$$

Friend 1's suffering decreases by Friend 2 having compassion for her, as does the suffering that Friend 2 feels for Friend 1. This is an extremely important point to make. Having compassion for someone else and helping them to ease their suffering has a very significant positive influence on how the giving person feels.

****Do I introduce this equation set with the mother and baby in chapter 1? I think so**.**
Substitute F1 with baby(B), and F2 with mother (M)

Place these equations into Chapter 2.

These equations apply when suffering has already occurred, and the emotion relief can be on the left-hand side of the equation (I could have alternatively used suffering, but having an increased $F1_{selfcomp}$ in the numerator which results in increased relief seems more intuitive to me).

Emotions (all are mental here) of Friend 1 ($F1$)

$$F1_{relief} = \frac{F1_{selfcomp}}{F1_{pain}}$$

Friend 2 feels Friend 1's pain and feels her lack of relief (feels her suffering).

$$F1_{relief} ==> F2_{relief} = \frac{F1_{selfcomp}}{F1_{pain}}$$

Friend 2 then has compassion for Friend 1, such as encourages her with words to have self-compassion. Note that Friend 2's feeling of relief depends closely on what Friend 1 has for feeling of relief. When Friend 1's relief occurs, Friend 2 also has the feeling of relief. What is felt as compassion by Friend 2's, is transferred by means of some physical interaction (here talk) into Friend 1's emotions as self-compassion. The representative equation is:

$$F2_{comp} ==> F1_{selfcomp}(fromF2)$$

The compassion from Friend 2 has added to Friend 1's self-compassion and adding it to $F1_{selfcomp}$ in the first equation results in:

$$F1_{relief} = \frac{F1_{selfcomp} + F1_{selfcomp}(fromF2)}{F1_{pain}}$$

Friend 1's total relief increases by Friend 2 having compassion for her.

By taking the first set of three equations above, and swapping friends, results in a second set of equations where, alternatively, Friend 2 has his relief increased.

Emotions of Friend 2 ($F2$)

$$F2_{relief} = \frac{F2_{selfcomp}}{F2_{pain}}$$

$$F2_{relief} ==> F1_{relief} = \frac{F2_{selfcomp}}{F2_{pain}}$$

$$F1_{comp} ==> F2_{selfcomp}(fromF1)$$

$$F2_{relief} = \frac{F2_{selfcomp} + F2_{selfcomp}(fromF1)}{F2_{pain}}$$

Here friend 2's relief increases by Friend 1 having compassion for him.

I believe there is also a feedback mechanism where, if $F1$ increases $F2$'s self-compassion, $F2$ may have more courage and could feedback more compassion for $F1$ to increase $F1$'s

self-compassion. In addition, if both friends are sharing the same type of suffering, then their efforts to console their friend may help console themselves through having self-compassion simultaneously, (since they are sharing common pain and emotions with each other), and the healing process may occur even much faster. This is what I refer to in my text as two friends sharing compassion and self-compassion and how powerful a healing force it can be. Also, once two people are fully engaged in this sharing, they are open to have cooperation and compromise with each other to discuss ideas about their shared problems and possible solutions. QED

Note that I could have instead used suffering in place of relief, since they are inversely related, but the math becomes much more complicated. Therefore, I chose to use relief.

Signals in the brain are voltages and currents. When emotions are blended, ...

When an interaction of two input variables is introduced, by default, it implies multiplication of those two variables. The resulting relationship for output of the equation and one of the input variables, depends on the value of the other input variable. The two input variables, with how they result in an output is intertwined. This is the type of relationship that occurs when emotions are blended. This strongly suggests that the emotion input variables are all multiplied (or divided) when blending them to produce the output emotion. In other words, blending (interaction) requires multiplication and division, not addition and subtraction (no interaction).

Relief = self-compassion / pain (this is an example of blended emotions: results in emotion Relief)

Self-compassion = desire x contentment

Compassion = desire x contentment x sympathy

Suffering = pain / self-compassion. Suffering = pain / compassion

Relief = 1 / suffering (as suffering increases, relief decreases)

Suffering = pain/compassion relief = compassion / pain

Love Section

Happiness = self compassion / pain

Happiness = compassion / pain

Happiness = passion/pain

Happiness = contentment x kindness

Kindness = desire + happiness + sympathy (person becomes happier as kindness increases, kindness is similar to compassion except, where kindness helps a more content person become happier, compassion helps another person who is suffering more.

Empathy = sympathy x ?????

The equation Relief = compassion / pain may, or may not, be applicable at all.

Another equation:

Happiness = Contentment x kindness

In most instances, an act of kindness causes a person, who is already content, to feel happy. The difference between kindness and compassion can be viewed this way: an example of kindness is to hold the door open for an elderly lady. In contrast, a corresponding act of compassion would be to help an elderly lady who is stuck in a door get out of it.

Appendix

How I arrived at the equation, suffering = pain/compassion.

I was having a discussion with my therapist about the emotions compassion and self-compassion, and how they related to each other and which was more fundamental. She had a book on her desk about self-compassion for one of her classes and she recommended I read it: "The Mindful Path to Self-compassion", by Christopher Germer. I ordered it, and as soon as it arrived, I starting reading it. I have read about 50 pages total, to this day. During my reading I came across an equation of his: suffering = pain x resistance. Since my therapist and I had been discussing compassion and self-compassion I mulled over in my head how this equation related to compassion. I did not understand, if Germer's book was on self-compassion, why he did not have an equation for it. I looked up the definition of compassion and self-compassion and found "urge to ease another's suffering" for compassion. I then observed that Germer's equation listed only suffering and pain and not compassion, and so what if I were to take suffering, pain and self-compassion and form an equation (a relationship between the three emotions)? What I first wrote was: self-compassion = Pain/suffering. Then, as far as I can tell, although I am a little fuzzy on this, I looked at Germer's formulation, and realized that increased pain causes increased suffering (like Germer's), and that for my equation, self-compassion would need to reduce the suffering. Therefore, self-compassion would need to be in the denominator. In this formulation, the suffering directly depended on pain and inversely to self-compassion, which represented much better logic to me. Based on this, I then rewrote my equation as suffering = pain / self-compassion where all three terms are emotions.

Thus, I arrived at my equation by taking another person's equation that suggested the relationships between emotions can be represented mathematically, and substituted an independent variable that was an emotion not an action. In hindsight, my opinion is that emotional responses in the brain are probably electrical in nature and interact with each other within the brain, which probably can be represented by some type of mathematical relationship in terms of voltage, current, etc.