

HOPE, PERSONAL CONTROL & POST-TRAUMATIC GROWTH: AN INTERVENTION FOR ACID ATTACK SURVIVORS

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ABSTRACT

Acid attack on women is a common crime in India, but very few researches have been done in this area, in order to study the psychological impact of such heinous crime. This study aimed at increasing the levels of hope, personal control and post-traumatic growth (PTG) by implementing an intervention for the acid attack survivors. 50 acid attack survivors were part of this study through homogenous purposive sampling. Pre-intervention scores were taken from them on all three components, followed by their sub-components. In the intervention phase, the participants were asked to write three-good things each day, for a period of 14 days. Post-intervention scores indicated that there was significant correlation between new possibilities and pathway sub-scale and total score of hope. Significant relationship was also found between personal strength and agency sub-scale of hope. Pathway sub-scale of hope correlated significantly with appreciation of life and total PTG score. There is also significant relationship between god-mediated control and relating to others sub-scale of PTG. There was significant increase in all the scores of the scales and sub-scales for all the components, in the post-intervention phase. This study can be further used to implement more such interventions with these survivors, in order to enhance their mental health and use for more policy related decisions.

Key words: *acid attack, hope, personal control and post-traumatic growth.*

INTRODUCTION

Women in the South-Asian countries and other parts of the world are mostly considered as second-class citizens, who are subjected to many forms of violence such as domestic abuse, sexual abuse, rape and other forms of abuse by the dominant males. Less frequently studied but common form of violence against women is Acid Attack in India. Acid attacks are done not to kill but to maim and torture the victim. Acid is often used as a tool for attack because it is cheap and easily available in the market, making it a dangerous weapon. It disfigures the victim by burning and dissolving their skin and bones. This form of violence is done to take revenge or teach a lesson for rejection of the perpetrator's proposal or family disputes (Ismail, Gurir & Lakho, 2020). There has been constant increase in the acid attack due to lack of laws, advocacy, rehabilitation and compensation protocols for these survivors.

There are psychological consequences of acid attack, such as low self-esteem, body image issues, and feelings of worthlessness and hopelessness, which have always gone unnoticed, as the focus is always on physical recovery of these victims. They also experience social anxiety, depression (Mannan, 2006), shame and stigma (Bokhari, 2013), getting unwanted attention and curiosity of people (Rumsey & Harcourt, 2004) and face loss of confidence in building of new relationships (Furness et al, 2006). These psychological issues often get ignored as the focus remains on physical recovery, as the Indian standards of a women 'being beautiful' is over-rated (Lodha et al, 2020).

Growth after a significant trauma like acid attack requires one to be making positive changes, leading them to develop personal strength, change one's perspective towards life and improving interpersonal relationships (Tedeschi & Calhoun, 2004). One way of growing through the trauma is by being grateful and more hopeful, which makes an individual more appreciative of everyday events, leading them to adapt from their trauma (Fredrickson, 2004). When a person is more hopeful, they assume greater personal control (Gallagher & Lopez, 2009). People with higher hope levels could tolerate more pain (Snyder et al, 2005).

Gratitude promotes hope among the individual through the past incidents that have happened in our lives. Hope also integrates cognition, emotion and motivation of the victims (Scioli et al, 2011), thereby relating to better psychological adjustment after any trauma (Snyder et al, 2002). Grateful and hopeful people savor their lives more, by appreciating their past and future goals (McCullough, 2002). People with high levels of gratitude tend to experience high levels of hope and happiness (Watkins, 2004). Grateful people are more likely to feel joy at the moment and have higher levels of contentment with life in general, despite their hardships (Walker & Pits, 1998). In other researches, it has been found that as post-trauma gratitude increases, PTSD symptoms decrease significantly in women (Vernon, Dillon & Steiner, 2009).

Post-traumatic growth indicates the changes experienced as a result of highly struggling life circumstances. Tedeschi and Calhoun (2004) says that posttraumatic growth consists of five

life domains- appreciation of life, intimate social relationships, feelings of personal strength, spiritual engagement and open to new possibilities. People with high dispositional hope are likely to report more growth after a trauma (Tennen & Affleck, 1998).

Another factor that plays a very important role in trauma recovery and adaptability is Personal Control. When a group of trauma survivors affirm their sense of control within their own selves, they are likely to experience post-traumatic growth (Lawler, 1992). It was found that lack of personal control adds to the vulnerability of greater suicide risks in trauma survivors (Chang et al, 2018). Internal locus of control influenced the post-traumatic growth in trauma victims (Zeligman, Grossman & Tanzosh, 2019). When a failure happens and the person has external locus of control, then the person is more likely to report feelings of gratefulness (Lawler, 1992).

Much of the research in Psychology is done either for trauma victims or general population. Literature for acid attack and studying its psychological consequences are very limited. Studies done so far have aimed to study their coping mechanisms and the psychological impact of such attack. However, no research is available for any kind of intervention being done on the acid attack survivors, in order to improve their levels of hope, personal control and post-traumatic growth. This shows the need of rehabilitating survivors, which will help them to cope from the psychological damage that they undergo.

Current Study

With the recent trend of focusing on Positive Psychology to increase the well-being of people, interventions with regard to improving the life quality of people have increased. Many factors such as life satisfaction, happiness, forgiveness and their reasons and pursuits have started to gain popularity. Popular research has also been done to understand the impact and coping mechanisms of patients of cardiovascular disease, breast cancer, rape victims and other trauma survivors. However, not much research has been done to understand the after-life of attack among the acid attack victims. There are a few studies being done to understand the coping mechanisms but not their feelings of control in their own life, growth and hope post the acid attack.

This study was an attempt to cover the gap of no active intervention being done with any acid attack survivors, through the use of '3-good things' intervention being done earlier by Emmons & McCullough (2003) and the effect of this intervention was measured on hope, personal control and post-traumatic growth. This intervention required to write 3-good things that they are thankful for or things that happened good to them, throughout the day. The greater goal of this study was to prepare the acid attack survivors to face life in more strengthened way, without having to ruminate much of their past related to the attack, and consider the small things that matter.

METHODS

Aim

The aim of this study is to check if there have been any significant changes in the levels of hope, personal control and post-traumatic growth among the acid attack survivors post the 14-day intervention, where they wrote about 3-good things that happened to them in the day.

Hypothesis

1. There will be no significant relationship between hope, personal control and post-traumatic growth before the intervention.
2. There will be a significant relationship between hope, personal control and post-traumatic growth after the intervention.
3. There will be significant increase in the mean scores of hope, personal control and post-traumatic growth after the intervention.

Participants

The participants of this study were 50 acid attack survivors, working in Sheores Hangout Café, Agra & Lucknow, via the Chhanv Foundation, an NGO working towards rehabilitation of these survivors. They were in the age range from 18-45 years, and belonged to various parts of India. Some of them were from urban and some were from rural setting. Each of them differed in the educational qualification and marital status. Most of the survivors were attacked in between last 1 year to 6 years or above.

Tools Used

1. Adult Hope Scale (Snyder et al, 1991)

The Adult Hope Scale is a 12-item scale to measure levels of hope, comprising of two sub-scales: Agency (4 items) and Pathways (4 items). The rest of the items are fillers. The items have 8-point likert scale ranging from definitely false to definitely true. Total score is calculated from the total of the two sub-scales.

2. Belief in Personal Control Scale (Berrenberg, 1987)

The BPCS is a scale designed to measure personal control. It consists of 45-items and is further divided into three subscales: General External Control, Exaggerated Control and God-mediated dimension. The scale has high internal consistency and test-retest reliability. Each of the items is based on the likert scale of 1 to 5, with 1 being always true and 5 being never true.

3. Post-traumatic Growth Inventory (Tedeschi & Calhoun, 1996)

PTGI is an instrument used to assess the positive outcomes of any traumatic experience that they have undergone. It has 21-items. The scale has an internal consistency reliability of .90. The test-retest reliability is accepted at .71 (Tedeschi & Calhoun, 1996).

Procedure

To carry out this research, the first author contacted the Management of Chhanv Foundation, Noida, who run the Sherioes Hangout café chain in India, which employees the acid attack survivors of the country for their rehabilitation. The 50 participants were selected based on purposive sampling. After sorting their permission, the survivors were informed about the study through an information sheet and consent form was duly signed by them before the assessment. Pre-assessment was done using three scales, followed by the 14-day intervention where they were asked to write 3 good things that happened to them during the entire day, for 14-days. Later, on the 15th day, post-assessment was done using the same scales to check if there is any change in their scores at the end of the intervention. For analysis, SPSS was run and the results were found.

RESULTS

Table 1: *Socio-demographic details of the acid attack survivors*

| Variable | Description | No. of Respondents | Percentage (%) |
|--------------------------|-----------------------|--------------------|----------------|
| Education | Less than High School | 34 | 68 |
| | Graduation | 16 | 32 |
| Background | Rural | 36 | 72 |
| | Urban | 14 | 28 |
| Age | 18-25 years | 12 | 24 |
| | 26-35 years | 22 | 44 |
| | 35 years & above | 16 | 32 |
| Years from Attack | 1-3 years | 13 | 26 |
| | 3-6 years | 12 | 24 |
| | 6 years & above | 25 | 50 |
| Marital Status | Married | 7 | 14 |
| | Unmarried | 16 | 32 |
| | Divorced/Separated | 27 | 54 |

Table 2: *Correlation between scores of hope, personal control and post-traumatic growth, before the intervention.*

| Pre Score | | | | | | | | | | | | | |
|-----------------------|--------------------------|-----------------|------------------|------------|--------------------------|---------------------|----------------------|-----------------------|-------------------|-------------------|------------------|----------------------|-----------|
| Variables | | Hope | | | Personal Control | | | Post-traumatic Growth | | | | | |
| | | Agency Subscale | Pathway Subscale | Total Hope | General External Control | Exaggerated Control | God-mediated Control | Relating to Others | New Possibilities | Personal Strength | Spiritual Change | Appreciation of Life | Total PTG |
| Hope | Agency Subscale | 1 | | | | | | | | | | | |
| | Pathway Subscale | .057 | 1 | | | | | | | | | | |
| | Total Hope | .668** | .645** | 1 | | | | | | | | | |
| Personal Control | General External Control | .035 | -.124 | -.085 | 1 | | | | | | | | |
| | Exaggerated Control | .277 | .060 | .205 | .054 | 1 | | | | | | | |
| | God-mediated Control | .142 | -.221 | -.086 | .163 | .163 | 1 | | | | | | |
| Post-traumatic Growth | Relating to Others | .175 | .085 | .239 | -.063 | -.063 | -.046 | 1 | | | | | |
| | New Possibilities | -.150 | .020 | -.147 | -.330* | .049 | -.047 | .026 | 1 | | | | |
| | Personal Strength | -.136 | .170 | .100 | -.091 | -.172 | -.063 | .122 | .137 | 1 | | | |
| | Spiritual Change | .015 | .087 | -.202 | -.127 | -.079 | -.146 | .089 | .120 | .024 | 1 | | |
| | Appreciation of Life | -.147 | .087 | .013 | .181 | .008 | .022 | -.053 | -.253 | .133 | -.132 | 1 | |
| | Total PTG | -.108 | .160 | .044 | -.279 | -.074 | -.135 | .580** | .689** | .488** | .298* | .022 | 1 |

**Correlation is significant at 0.01 level.

*Correlation is significant at 0.05 level.

Table 2 showed the significant correlation between the sub-scales of hope, personal control and post-traumatic growth in the pre-intervention phase.

Table 3: *Correlation between scores of hope, personal control and post-traumatic growth, after the intervention.*

| Post Score | | | | | | | | | | | | | |
|-----------------------|--------------------------|-----------------|------------------|------------|--------------------------|---------------------|----------------------|-----------------------|-------------------|-------------------|------------------|----------------------|-----------|
| Variables | | Hope | | | Personal Control | | | Post-traumatic Growth | | | | | |
| | | Agency Subscale | Pathway Subscale | Total Hope | General External Control | Exaggerated Control | God-mediated Control | Relating to Others | New Possibilities | Personal Strength | Spiritual Change | Appreciation of Life | Total PTG |
| Hope | Agency Subscale | 1 | | | | | | | | | | | |
| | Pathway Subscale | .046 | 1 | | | | | | | | | | |
| | Total Hope | .644** | .763** | 1 | | | | | | | | | |
| Personal Control | General External Control | .024 | .145 | .148 | 1 | | | | | | | | |
| | Exaggerated Control | .016 | .033 | .058 | -.143 | 1 | | | | | | | |
| | God-mediated Control | .168 | .001 | .134 | -.073 | .751 | 1 | | | | | | |
| Post-traumatic Growth | Relating to Others | -.226 | -.095 | .169 | -.158 | -.158 | .326* | 1 | | | | | |
| | New Possibilities | .181 | .355* | .365** | .040 | .040 | .038 | -.120 | 1 | | | | |
| | Personal Strength | .384** | .209 | .089 | .105 | -.105 | .038 | .181 | -.075 | 1 | | | |
| | Spiritual Change | .105 | .073 | .127 | -.010 | -.010 | .135 | .110 | .297* | .004 | 1 | | |
| | Appreciation of Life | .073 | .434** | .331* | .141 | .141 | .185 | .148 | .237 | .045 | .237 | 1 | |
| Total PTG | | .106 | .389** | .248 | .112 | -.112 | .053 | .497** | .520** | .427** | .399** | .417** | 1 |

**Correlation is significant at 0.01 level.

*Correlation is significant at 0.05 level.

Table 3 showed the significant correlation between the sub-scales of hope, personal control and post-traumatic growth in the post-intervention phase.

Table 4: *Mean Comparison of Scores before and after Intervention on levels of Hope, Personal Control and Post-Traumatic Growth.*

| Variable | | N | Before Intervention | | After Intervention | | <i>t-score</i> | <i>Sig.</i> | <i>r</i> | Cohen's <i>d</i> |
|-----------------------|--------------------------|----|---------------------|------------|--------------------|------------|----------------|-------------|----------|------------------|
| | | | <i>M</i> | <i>S.D</i> | <i>M</i> | <i>S.D</i> | | | | |
| Hope | Agency Subscale | 50 | 23.80 | 2.85 | 29.18 | 1.71 | 16.78 | .000 | .606 | 2.28 |
| | Pathway Subscale | 50 | 23.78 | 2.90 | 29.16 | 1.94 | 14.07 | .000 | .436 | 2.18 |
| | Total Hope | 50 | 48.34 | 6.26 | 58.34 | 2.68 | 19.72 | .000 | .137 | 3.06 |
| Personal Control | General External Control | 50 | 67.32 | 2.85 | 78.08 | 3.96 | 18.43 | .000 | .302 | 3.11 |
| | Exaggerated Control | 50 | 69.40 | 5.17 | 61.66 | 5.07 | 10.32 | .000 | .466 | 1.51 |
| | God-mediated Control | 50 | 19.60 | 2.24 | 33.04 | 5.43 | 15.90 | .000 | .045 | 3.23 |
| Post-traumatic Growth | Relating to Others | 50 | 25.74 | 3.08 | 31.46 | 2.40 | 16.56 | .000 | .631 | 2.07 |
| | New Possibilities | 50 | 17.98 | 3.61 | 22.34 | 1.61 | 11.07 | .000 | .678 | 1.55 |
| | Personal Strength | 50 | 10.86 | 1.62 | 17.08 | 1.46 | 23.71 | .000 | .286 | 4.03 |
| | Spiritual Change | 50 | 5.88 | 1.13 | 8.22 | .815 | 12.85 | .000 | .161 | 2.37 |
| | Appreciation of Life | 50 | 6.60 | 1.03 | 12.76 | 1.37 | 25.17 | .000 | .011 | 5.08 |
| | Post-traumatic Growth | 50 | 67.06 | 5.56 | 91.86 | 3.74 | 41.28 | .000 | .646 | 5.23 |

Table 4 revealed mean comparison of the scores on sub-scales of Hope, Personal Control and Post-Traumatic Growth before and after the intervention given to the acid attack victims. Findings indicated that there are significant mean differences on all the sub-scales and total scores of the three variables indicating the effectiveness of the intervention on the acid attack survivors.

DISCUSSION

Acid attack in India is a heinous crime that has become a gendered crime, carried out by males over females in order to fulfill their revenge, express anger and display power. The goal of such an attack is not to kill the victim, but to make them suffer. Along with physical deformities, they also bear psychological trauma, such as severe suicidal thoughts (Piper 2017), feelings of depression and anxiety, low self-esteem, phobias, insomnia, PTSD, along with developing fear of being attacked again (Mannon et al, 2006). However, there have been very few studies on understanding the trauma and rehabilitation for these acid attack survivors.

This study aimed at using the ‘3-good things’ intervention given by Emmons & McCullough (2003) with the survivors, in order to check if the intervention leads these survivors to feel more hopeful, if it helps them in their post-traumatic growth and also their sense of control on the consequences of things in life. The participants of this study were 50 acid attack survivors, belonging to different parts of India, but working together in a café, Sheroes Hangout, run by the Chhanv Foundation, an NGO aimed at rehabilitation of the acid attack survivors. Some of the participants were married and some were unmarried or separated. 34 of the survivors have only finished high-school and 16 of them had finished graduation. For the intervention, the survivors were asked to write 3-good things each day that they experienced or felt throughout, for a period of 14-days. Scores were taken on day 1 and day 15, using three questionnaires.

Trauma to any form or intensity makes a person change their belief systems. Their “assumptive world” gets challenged due to the attack (Janoff-Bulman, 1985). It blocks one’s problem solving willingness and ability to think on what are the ways to sustain motivation. Table 2 shows the relationship between the three components before the intervention was implemented on the survivors. It can be seen that there is no significant correlation between the three components of hope, personal control and post-traumatic growth. Trauma makes a person very difficult to exercise self-control, leading to the increase in PTSD symptoms. In a study done on physically & sexually abused women, it was found that their abuse history was a significant predictor of self-control (Henschel, de Bruin & Mohler, 2013) and childhood abuse makes one to choose immediate rewards, compared to larger delayed rewards (Lovallo et al, 2013). Any kind of trauma makes an individual to be having a sense of foreshortened future. They tend to not plan ahead and go with the flow and sometimes even resort to rethinking their values in life (Yule, Perrin & Smith, 2001).

Often times in trauma the focus of the survivor is on the physical recovery. It is a rare phenomenon when people think about being thankful to be alive or that much worse could have happened. In order to bring back focus on the positives, gratitude serves a great purpose, as it is both a trait and a state. Trait gratitude is described as an individual’s predisposition to experience gratefulness and state gratitude is when one feels grateful for the outcomes received (McCullough et al, 2002). Research has shown that maintaining three-good things diary as daily

writing habit increases resilience and well-being (Watkins, 2004). Table 3 here shows the post-intervention score of the sub-scales of hope, personal control and post-traumatic growth.

In the hope theory given by Snyder (1994), there is an important component of agency hope that refers to self-referential thoughts of an individual along with an intention to act (Rand & Cheavens, 2012). On the other hand, pathways hope is the intention of an individual to carve out their own ways to achieve their goals. In the post-intervention phase we can see that there is a strong correlation between the different sub-scales of hope to the total score of hope (agency: $r=.644$, pathways: $r=.763$, $p<0.01$). This was because of the 14-day three-good things exercise, which led to increase in their hope. Literature also points out that hopeful and grateful people savor their lives, by appreciating their present or past, with meaningful goals. Gratitude involves appreciation of the benefits received whereas hope is the anticipation that desired outcomes will be received (Snyder, Rand & Sigmon, 2002).

In the post intervention stage, it was seen that agency hope significantly correlated with personal strength sub-scale of post-traumatic growth ($r=.384$, $p<0.01$). Writing three good things for a period of 14-days seemed to increase the self-esteem of the survivors, which in turn enhanced the personal strengths in them. Sometimes in trauma, the 'upside' of it is that it leads to increase in personal strengths (Naik & Khan, 2019). In a study done to study the personal strengths and growth, it was seen that hope mediated the relationship (Meyers et al, 2015). In a qualitative assessment of the three-good things intervention, it was found that personal strength can be increased by making use of self-determined time, which is driven by self-motivated thoughts, closely related to the agency sub-scale of hope (Rippstein-Leuenberger et al, 2017).

One of the significant relationship noticed was between new possibilities and pathway hope ($r=.355$, $p<0.05$), as the focus was on positives of life in the last few days, making them believe that there is a possibility of new things happening in life, for which they need to identify the ways to attain those goals. The total hope score also significantly correlated with new possibilities sub-scale of the post-traumatic growth ($r=.365$, $p<0.01$). Hope acts as a protective factor that positively impacts one's psychosocial and spiritual development, leading to have better self-efficacy, resilience and personal growth. This is true for acid attack survivors, who may become flexible to adjust the goals of life according to the new circumstances they have (such as scars on their body) and are able to appreciate the life more (Hullman et al, 2014).

One of the components of post-traumatic growth is the appreciation of life, which requires one to engage in cognitive restructuring of the thoughts and memories. People with trauma report a shift in how they approach and experience their daily lives. They develop the 'sense of being lucky' and closely start appreciating the small things happening in their lives (Kondratyuk & Puchalska-Wasył, 2019). This leads the survivors to build on their future goals, which can be goal-directed, when they put an effort to attain that goal through their pathways. Similar findings were found in this research as well, where there is a strong correlation between Appreciation of Life sub-scale of Post-traumatic Growth Inventory and Pathways sub-scale of

Hope ($r=.434$, $p<.01$). The acid attack survivors when have more appreciation for life in general, they are more likely to find for internal pathways to make their life better and may also develop alternative pathways in order to reach their goals (Tierney, 1995).

As seen on table 3, there is a strong correlation between pathway subscale of hope and total Post-traumatic Growth ($r=.389$, $p<0.01$). In a trauma such as acid attack, it is very common that the survivors are engulfed in feelings of sadness and social anxiety. However, in this research, survivors who completed the three-good things intervention for 14-days developed high pathway hope, making them believe that there is a way to work on their problems and working on those routes to achieve their goals would help them. Those who had high pathway hope may have concrete planning and application of further strategies when faced with more barriers (Synder, 2000). This in itself leads one to believe that one can grow out of their trauma by developing routes and pathways out of it. The role of employment at Chhanv Foundation is playing a major role in this as well; as survivors feel that the organization is paving a way for them to sustaining and leading a normal life.

When the survivor starts appreciating their own life that whatever and however it is, they are most likely to be high in hope as well. In this intervention, it was seen that after 14-days the appreciation of life and total hope scores correlated significantly ($r=.331$, $p<0.05$). This implies that with each passing day of the intervention, they felt thankful for the things that have been happening around them, which made them appreciate their own life. This, in turn leads to increase in the hope among the survivors for a better life. Gratitude intervention done has been previously found to increase the appreciation of other people (Watkins et al, 2003). Moreover, gratitude is more than appreciation for others; rather it is appreciation for one's own abilities (Weiner, Russell & Lerman, 1979) and appreciation and hope arises more after trauma since there is an understanding in these trauma survivors that life is short (Adler & Fagley, 2005), for which it is important to 'live life to the fullest', value each day more and leading life with more hope as they are better off than a lot of other (Linley & Joseph, 2004). Appreciation of life leads to increase in hope as it validates the individual's belief of finding good in bad times, which in turn restores comforting views of others, themselves and the world (Affleck & Tennen, 1996).

In the post-intervention phase, it was seen that only one sub-scale of Personal Control, that is God-mediated control significantly correlated with relation to others sub-scale of Post-traumatic Growth scale ($r=.326$, $p<0.05$). From past literature, it can be seen that when religion is given a lot of importance, negative events of trauma, such as acid attack can be seen as opportunities of growth (Ellison, 1991) and they act as stress-buster (McFadden, 1995). Religious support group takes an individual close to people around, thereby moving them from the traumatic thoughts and making them see the world as a meaningful place (Idler & George, 1998).

In the post-traumatic growth scale, all the sub-components were related to the total post-traumatic growth score. Relating to others is an essential component of post-traumatic growth as

people who perceived, received or had higher social support previously had develop more post-traumatic traits later (Rzeszutek, 2017). The gratitude exercise increases one's ability to form social relationships, as the survivors may have become more trusting for relationships in their lives. This is seen in our study also, where the correlation is .497, significant at 0.01 level. Gratitude exercise also helps in making the survivors look at life from different perspectives and explore more options for life (Lindstrom et al, 2011). The correlation between new possibilities and post-traumatic growth is .520, significant at 0.01 level. The past assumptions of one's life get changed and new beliefs and opportunities become visible to the victims, leading to post-traumatic growth (Tedeschi & Calhoun, 1996). The 14-day exercise definitely makes one to focus on the personal strengths they have, leading to increase in post-traumatic growth as well ($r=.427$, $p>0.01$). It makes one believe that one can deal with future challenges and adversities and has more skills, compared to the self before the trauma (Lindstorm et al, 2011). In trauma, there is an increase in higher religious entities, and it also acts as a coping mechanism for post-traumatic growth (Lidstorm et al, 2011). An increase in spiritual beliefs after the 14-day gratitude exercise show that one's belief in super-power increases as one becomes more thankful to having a life, despite the trauma they have undergone like the acid attack ($r=.399$, $p<0.01$). This intervention also increased the appreciation of life in the survivors, contributing to the post-traumatic growth ($r=.417$, $p<0.01$). This exercise can act as a way to focus on the small things that were previously ignored or considered unimportant, thereby making them more appreciative of life (Lindstorm et al, 2011).

Table 4 here shows the difference of the scores in pre & post intervention phase, where there has been significant difference in hope scores. This means that hope has significantly increased due to the acid attack survivors keep the diary where they noted down 3 good things that happened to them daily, for a period of 14-days. Gratitude has increased agency hope ($t=16.78$, $p<0.01$) among the acid attack survivors, that is their own self-esteem (Kong, Ding & Zhao, 2014). It also enhanced their faith that they can build their own pathways to achieve their goals ($t= 14.07$, $p<0.01$). Positive emotions such as gratitude enhance one's ability to expand their personal resources, thereby increasing the ability of the person to think of ways to deal with their own trauma and build hope into their lives (Fredrickson, 2001).

In personal control scale, the difference in the pre-&-post intervention phase was significant in all the three sub-scales. In the general external control sub-scale, the individual believes that the outcomes of things are being driven by fate or people (externality), or by self (internality). Gratitude intervention has been found to increase humility in the previous studies as well, by promoting external focus and inhibiting internal focus (Kruse et al, 2014). On the other hand, there was a significant drop in exaggerated personal control in the acid attack survivors after the 14-day daily dairy writing intervention with the acid attack survivors (pre-score mean: 69.40, SD=5.17, post-score mean: 61.66, SD= 5.07). This implied that acid attack survivors may tend to criticize themselves and consider themselves as responsible for the attack, before the intervention. Increase in gratitude decreases their sense of self-criticism and self-attacking

nature. Gratitude makes one to see the recipient of other people's generosity, which makes us feel valued, esteemed and gives us a sense of 'deservingness', which in turn boosts our self-esteem and reduces self-criticism (McCullough et al, 2002). For God-mediated personal control, we can see a significant difference in the t-value, with an increase in the post-scores due to the gratitude intervention (pre-score mean: 19.60, SD=2.24, post-score mean: 33.04, SD= 5.43). It is seen that God is ready to help in difficult situations and for this, the people mostly feel grateful (Krause, 2009). When more people write about things that they are grateful about, God is one of the aspects they feel has been controlling major aspects of their life and in turn, they become more grateful to God.

The daily three-good things intervention done for 14-days on the acid attack survivors showed an increase in the sub-components of post-traumatic growth. On relating to others sub-scale, the mean increased from 25.74 (SD=3.08) to 31.46 (SD=2.40) in the post-intervention stage. Gratitude enhances social relationships by building new bonds and maintaining existing relationships. Gratitude makes a person more empathic, emotionally stable, forgiving, trusting and generous (McCullough et al, 2002). Moreover, grateful people are more gladly able to recognize the role that others have played in their well-being (Emmons & Mishra, 2010). For the new possibilities sub-scale of the post-traumatic growth, gratitude seems to increase openness to new experience for the survivors in the post-traumatic experience (means scores from 17.98 to 22.34). Literature shows that individuals who practice gratitude see their hardship as a steppingstone towards their goals that improves growth mindset and makes them open for new learning (Duckworth et al, 2007). They are likely to perceive the difficult moments in their lives as learning experiences (Agnieszka et al, 2020). Moreover, gratitude is considered to be a moral emotion that can be identified as a personal strength and character virtue that can increase trust and emotional intimacy in relationships (Algoe, 2012). In the intervention, the post score for the personal strength sub-scale increased from 10.86 to 17.08, indicating that gratitude can act as a way of bouncing from their trauma phase and making them acknowledge that there is more in life from where they can draw strength from. Feelings of gratitude increase feelings of competence (Agnieszka et al, 2020). For spiritual scale, the mean of the scores increased from 5.88 to 8.22 in the post-intervention phase. This shows that people who are grateful become more spiritually bent. Moreover, people who experience gratitude towards God tend to attribute their healing and gift of life to God itself (Lupfer et al, 1994). The same is with the acid attack survivors, whose gratitude led to an increase in spirituality level may have increased their sense of thankfulness towards God for giving them the life they have right now, despite their struggle and pain of the attack that they have gone through. In the total score of the post-traumatic growth scale as well, there is an increase in the mean score from 67.06 to 91.86 in the post-intervention stage. Many studies point the need of gratitude to move people from post-traumatic stage to growth stage. Gratitude may make trauma survivors have external attributions for the attack on them by using statements such as "I am grateful I survived" or "I am grateful for others' help" (Froh, Sefick & Emmons, 2008).

Conclusion

This study implemented a 14-day gratefulness intervention on 50 acid attack survivors, and explored the levels of hope, personal control and post-traumatic growth and traced to see if they have increased significantly after the intervention. This research further throws light on the need for more such intervention for acid attack survivors, as it would help these survivors deal with their traumas in more equipped way. There is also an urgent need for incorporating mental health care for these survivors, along with physical crisis care, in the policy design.

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