# RESULTS

The results of the study are presented under the following headings

1. “Distribution of study subjects by Socio Demo-Graphic and other Variables”.
2. “Prevalence/Magnitude among Disaster victims”.
    i. PTSD
    ii. H-QOL
3. “Association of variables in Disaster victims”.
    i. PTSD & H-QOL.
    ii. Demographic & other variables with PTSD.
    iii. Demographic & H-QOL.
4. “SWOT analysis regarding ongoing Disaster preparedness and mitigation measures”. (Mahalingam V & Roy D, 2017)

## I. Socio Demo-Graphic and other Variables

Table No: 1.1 Distribution of Study participants according to Socio Demo-Graphic and other Variables showed following results

- One third(32%) of the study participants were aged between 25-34 years, every fourth participant (26%) was aged between 35-44 years, every fifth (20%) between 45-54years of age and almost every tenth participant (11%, 9%) were aged between 14-24 & 55-64 years.
- Gender wise both male (50.5%) and female (49.5%) participants were almost equal.
- Every fifth (20%) of the study participant did not have formal education; although 39% had primary education and one third (33%) had secondary level of education.
- Approximately half (54%) of the study participants were non skilled inhabitants, and one third (31%) had no livelihood, only 15% of the study participants were skilled workers.
- The Greatest (84%) number of the study participants family monthly income was between the Rupees of 5001-20000 and 9% had income more than rupees of 20000 monthly.
- Most (93%) of the participants were married and 7% were living single.
- Every second (49%) study participant was afflicted with water associated disaster, 30% suffered with land allied disaster and every fifth (21%) afflicted with road associated disasters.

- Exposure to disaster events, only 39% of the study participants exposed once and majority (71%) were exposed twice or more.
- Duration of exposure in terms of weeks, almost half (46%) of the study participants reported one week of continuous exposure and more than half (54%) reported more than two weeks continuous exposure to a disaster events.
- Approximately two third (64%) experienced 'non-life threatening' situations and remaining one third (36%) participants reported 'life threatening experience' during disaster events.
- Type of loss during disasters shows 44% of the study participants suffered impairments and loss of property and remaining (56%) reported no property loss.

Table No: 1 Distribution of Study subjects by Socio Demo-Graphic and other Variables

(N=2667)

| S. No | Variable | | Frequency | Percentage(%) |
|---|---|---|---|---|
| 1. | **Age in Years** | 14-24 | 300 | 11 |
| | | 25-34 | 842 | **32** |
| | | 35-44 | 702 | 26 |
| | | 45-54 | 521 | 20 |
| | | 55-64 | 244 | 9 |
| | | 65-74 | 58 | 2 |
| 2. | **Gender** | Male | 1321 | **50.5** |
| | | Female | 1346 | **49.5** |
| 3. | **Education status** | No formal Education | 524 | 20 |
| | | Primary education | 1051 | **39** |
| | | Secondary education | 866 | 33 |
| | | Tertiary education | 226 | 8 |
| 4. | **Occupation** | Skilled | 407 | 15 |
| | | Non skilled | 1432 | **54** |
| | | No occupation | 828 | 31 |
| 5. | **Family monthly** | <5000 | 176 | 7 |
| | | 5001-10000 | 1074 | **40** |

| | | | | |
|---|---|---|---|---|
| | **income** | 10001-20000 | 1173 | **44** |
| | | >20000 | 244 | 9 |
| 6. | **Marital status** | Single | 183 | 6.9 |
| | | Married | 2472 | **92.7** |
| | | Separated | 12 | .4 |
| 7. | **Kind of disaster exposed** | Water | 1302 | **49** |
| | | Land | 772 | 30 |
| | | Road | 593 | 21 |
| 8. | **Frequency of exposure** | 1 | 1041 | **39** |
| | | 2 | 761 | 29 |
| | | 3 | 865 | 32 |
| 9. | **Duration of exposure** | 1week | 1215 | **46** |
| | | 2week | 213 | 8 |
| | | 3week | 118 | 6 |
| | | 4week | 1121 | 42 |
| 10. | **Type of exposure** | Potentially life threatening | 963 | 36 |
| | | Not potentially life threatening | 1704 | **64** |
| 11. | **Type of loss** | Any impairment/disability/death | 368 | 14 |
| | | Loss of property | 807 | 30 |
| | | None | 1492 | **56** |

## II. Prevalence of PTSD among Disaster victims.

### 2.1 Prevalence of PTSD among Disaster victims at Baseline

Figure No: 8 shows the baseline prevalence of PTSD among disaster victims. Whereas, every second (51%) disaster victim experienced symptoms of PTSD, others (49%) did not meet the post-traumatic stress disorder criteria. The total population covered to assess the baseline was 2667. Thus it could be inferred that all the participants had experienced some level of stress, but half of the participants could not overcome the stress.

(N=2667)

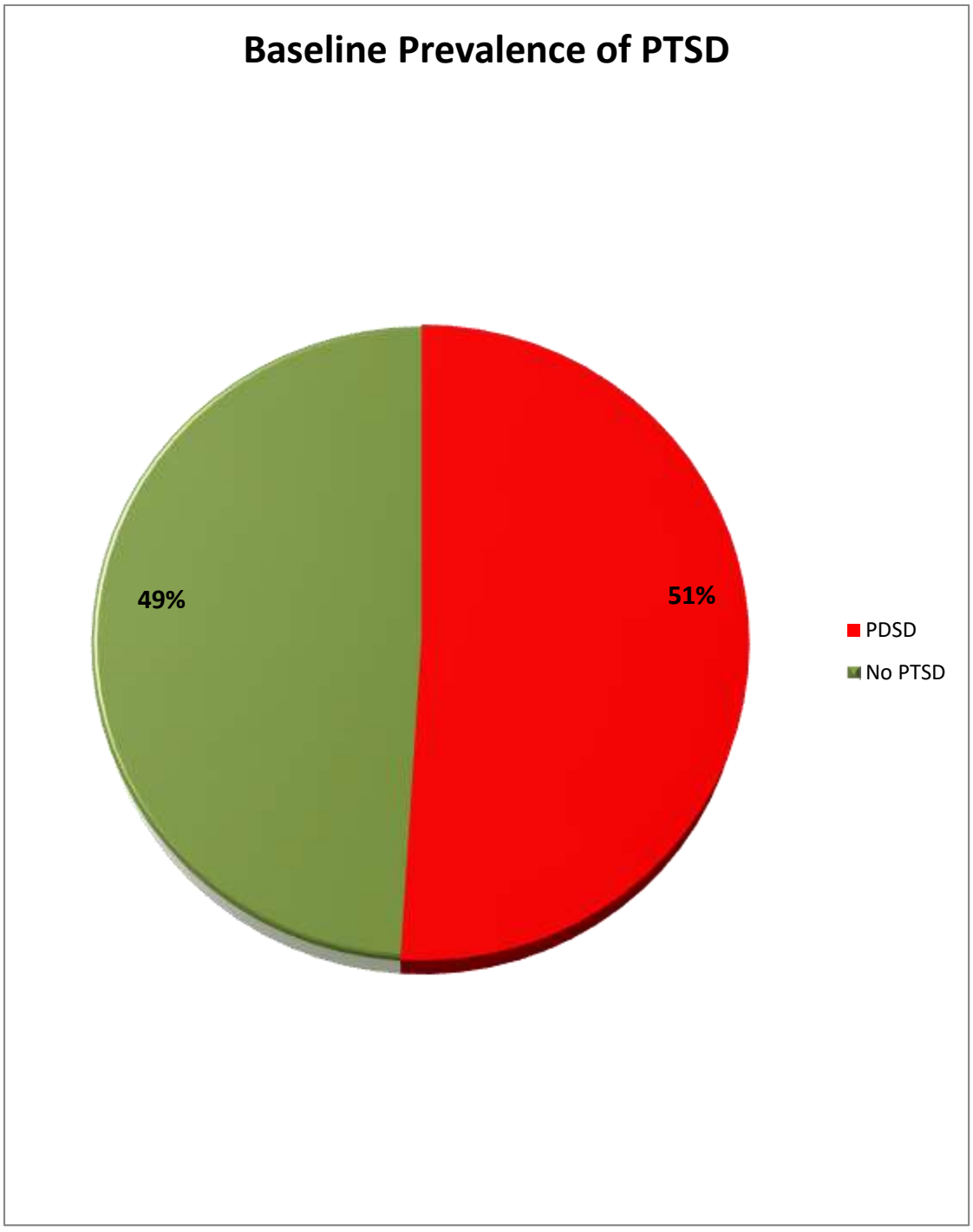


Figure No: 8 Prevalence of PTSD at Baseline

## 2.2 Prevalence of PTSD among Disaster victims at End line

Figure No: 9 shows the prevalence of posttraumatic stress symptoms after disaster exposure. End line prevalence showed that every fifth (22%) disaster victim met the criteria of PTSD symptom and 78% of disaster victims overcame the stress.

(N=1719)

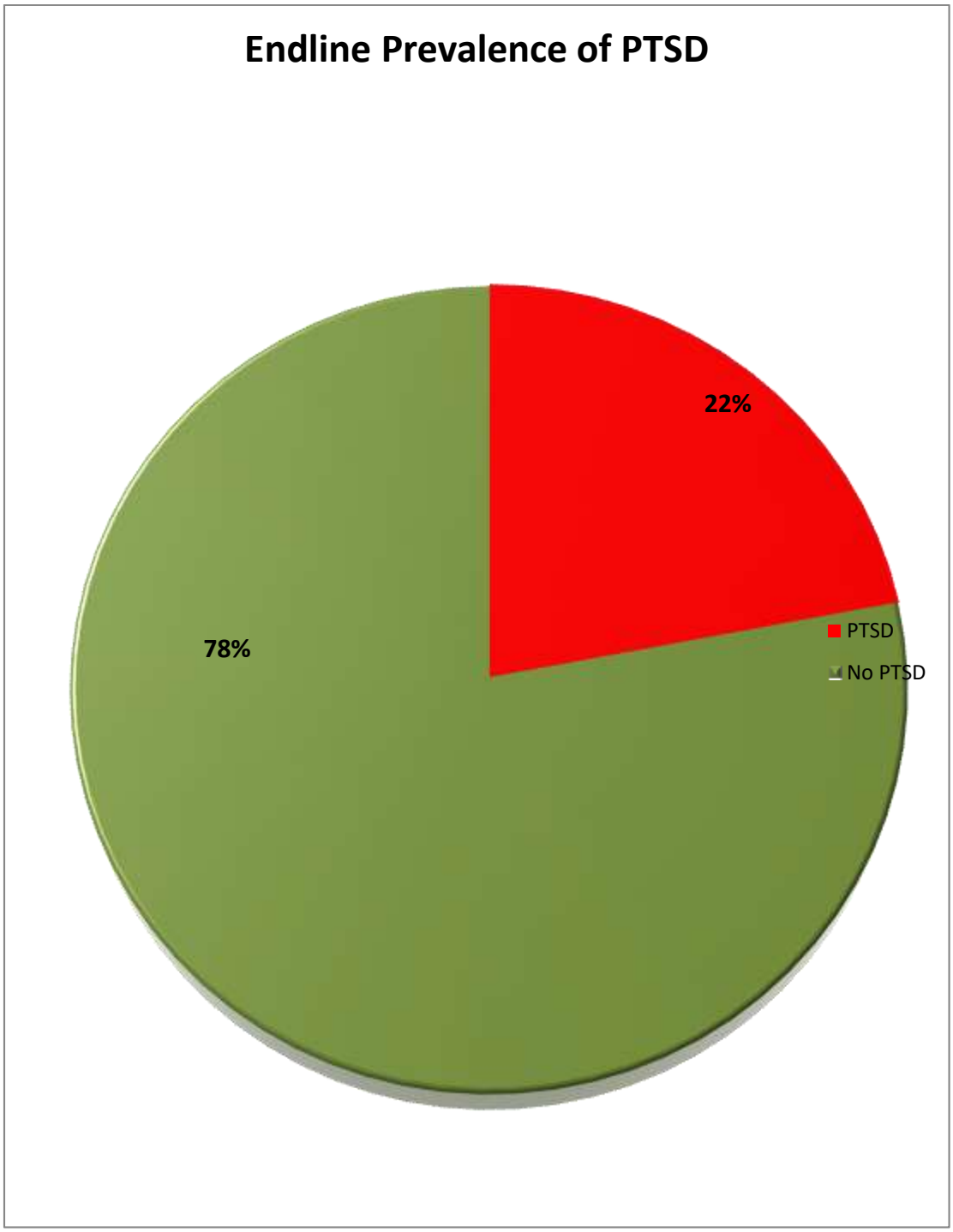


Figure No: 9 Prevalence of PTSD in End line

### 2.3 Comparison of Baseline PTSD with End line PTSD

Table No. 2.1 depicts the variation between baseline and end line symptoms of post stress symptom among disaster victims. Baseline PTSD mean score (51.02±18.8) was higher among disaster victims with post disaster stress symptoms. On the other side, end line post disaster stress symptoms mean score (38.9±18.2) declined among disaster victims. Hence it could be interpreted that the base line PTSD mean score is significantly higher than the end line PTSD mean score at the level of significance $p \leq .05$.Thus it could be concluded that with the passing of time people either adjusted and adapted into situation, which helped them to attain a coping mechanism at the prevailing circumstances.

Table No: 2.1Comparison of Baseline PTSD with End line PTSD (N=1719)

| S. No | PTSD | Mean± S.D | 't' value | 'p' value |
|---|---|---|---|---|
| 1. | **Baseline** | 51.02±18.8 | 21.10 | .0001 |
| 2. | **End Line** | 38.9±18.2 | | |

df=1718, level of significance p≤.05

## III. Magnitude of HQOL Disaster victims

### 3.1 Magnitude of HQOL of Disaster victims at Baseline

Table No 3.1 depicts HQOL of Disaster victims at baseline which is categorized in five different domains. Over all H QOL score was found to be 'poor' (1.76±.43). Sub scales of Health related QOL like physical (2±.03); social (2±.02) and environmental H–QOL (2±.01) were found to be 'poor'. And psychological domain of H- QOL of disaster victims was found to be 'very poor' as it was 1.1±.40. These study results confirms the relationship between mind and body, if one would affected other will inversely be affected. The psychological parameters are contingent on environmental, physical and social influence also.

Table No: 3.1 Baseline Magnitude of HQOL of Disaster victims

(N=2667)

| S. No | QOL(domain wise) | Mean ± S.D | Interpretation |
|---|---|---|---|
| 1 | **Total (across all domains)** | 1.76±.43 | Poor |
| 2 | **Physical** | 2.0±.03 | Poor |
| 3 | **Psychological** | 1.1±.40 | Very Poor |
| 4 | **Social** | 2.0±.02 | Poor |
| 5 | **Environmental** | 2.0±.01 | Poor |

### 3.2 Magnitude of HQOL of Disaster victims at End line

Table No 3.2 illustrates end line HQOL domain wise scores of disaster victims. Total Health related QOL score at end line was found to be improved from the baseline 2.53±.43 and it was 'neither poor nor good'. This could be interpreted that H-QOL of disaster victims were at least not worsening. Other domains like physical (3.02±.06), Social (3.7±.71) showed improvement. The radical improvement was seen in environmental (4.1±.05) domain. Even though psychological domain was also found to be nominally improved from 'very poor' to 'poor' (1.9±.30). These findings suggest that time heals even though its gradual but surely it helps.

Table No: 3.2 End line Magnitude of HQOL of Disaster victims

(N=1719)

| S. No | QOL(domain wise) | Mean ± S.D | Interpretation |
|---|---|---|---|
| 1 | **Total (across all domains)** | 2.53±.43 | Neither poor nor Good |
| 2 | **Physical** | 3.02±.06 | Good |
| 3 | **Psychological** | 1.9±.30 | Poor |
| 4 | **Social** | 3.7±.71 | Good |
| 5 | **Environmental** | 4.1±.05 | Very Good |

### 3.3 HQOL comparison between Baseline and End line

Table No 3.3 demonstrates difference between baseline and end line H QOL among disaster victims. The total score across all domains indicates significant improvement in symptoms at the end line (2.53±.43) at the significant level of $p \leq .05$, compared to the time when the exposure was recent and the wounds were novel. Each domain improved with time implying correlation duration since exposure.

Table No: 3.3 H Quality of Life comparison between Baseline and End line

(N=1719)

| S. No | QOL(domain wise) | Base Line | End Line | 't' value | 'p' value |
|---|---|---|---|---|---|
| | | Mean ± S.D | Mean ± S.D | | |
| 1 | **Total (across all domains)** | 1.76±.43 | 2.53±.43 | 52.49 | .0001 |
| 2 | **Physical** | 2.0±.03 | 3.02±.06 | 63.45 | .0001 |
| 3 | **Psychological** | 1.1±.40 | 1.9±.30 | 66.33 | .001 |
| 4 | **Social** | 2.0±.02 | 3.7±.71 | 99.22 | .0001 |
| 5 | **Environmental** | 2.0±.01 | 4.1±.05 | 170.7 | .0001 |

df=1718, level of significance $p \leq .05$

## IV. Association between PTSD & HQOL

**(by correlation & regression)**

Table No 4.1 describes rankings of quantifying PTSD and HQOL scores of disaster sufferers. “The rankings between PTSD and QOL was found negatively correlated i.e. -0.91 at the level of significance $p \leq 0.05$”. “The beta score (-1.259) in correlation shows that an increase of a unit of PTSD score results in a fall of QOL rating by 1.259 units a among the catastrophe sufferers”. “The beta rating (-2.213) in correlation indicates increase of a unit of PTSD rating results in fall of social health score through 2.213 units a among the disaster victims”. “Rankings for different domain names of health related QOL i.e. physical, mental, Social and environmental also correlated negatively with PTSD rating at the level of significance $p \leq 0.05$”. So it can be interpreted that research hypothesis ($H_{1)}$ accepted and null hypothesis ($H_0$) rejected. “Scores highlighted the relation between two variables these were statistically observed to be negatively correlated”. (Mahalingam V & Roy D, 2017)

Table No: 4.1 Association between PTSD & Health related QOL

(N=2667)

| S. No | **Variables** | **r value** | **β** | **Sig** |
|---|---|---|---|---|
| 1. | TOTAL QOL & PTSD | -.91** | -1.259 | .0001 |
| 2. | Physical QOL & PTSD | -.87** | -.334 | .0001 |
| 3. | Psychological QOL & PTSD | -.85** | -.310 | .0001 |
| 4. | Social QOL& PTSD | -.822** | -2.213 | .0001 |
| 5. | Environmental QOL &PTSD | -.876** | -.372 | .0001 |

## V. Association between Demographic and other variables with PTSD

Table No 5.1 exemplifies association between demographic and other variables with PTSD among disaster victims.

- Both gender Females (53.4%) & Males (49.3%) were found to have more or less equal chances to develop PTSD symptoms if exposed to disaster. The association between gender and PTSD symptoms shows statistical significant at the $p \leq 0.05$ level.
- Non- Formally educated Disaster victims (61.28%) compared to primary education (51%), secondary education (48.5%) and tertiary education (44.7%) significantly ($p \leq 0.05$) had been developed PTSD.
- The disaster victims who had no occupation (59.5%) were significantly afflicted more with PTSD compared to non-skilled (49.2%) and Skilled (43.3%) disaster victims.
- Disaster victims with monthly family income <5000 (83%) had been significantly ($p \leq 0.05$) developed PTSD compared to income 10001-20000(52.2%), >20000(51%) and 5001-10000(45.7%).
- Non marital (77%) disaster victims had higher probability to develop PTSD than the separated (50%) and married (49.6%) at the significant level $p \leq 0.05$.
- Victims exposed to disasters involving land (56.8%), compared to water (53%) and road (40%) significantly ($p \leq 0.05$) had more chances to developed PTSD.
- The victims exposed thrice (57%) to a disaster have significant risks ($p \leq 0.05$) to developed PTSD, compared to those who were exposed ≤ 2 (47.6%) times.

- The victims who had exposed one week(53%), two week(55%), three week(49.2%) and four week to a disaster more or less equal chance to develop PTSD at the significant level $p \leq 0.05$.
- Disaster victims who experienced 'life threatening' situations (93.8%), approximately three times has added risk to develop PTSD than those who were not exposed to 'non-life threatening' conditions (27.6%) at the significant level of $p \leq 0.05$.
- Those victims with any type of impairments (96.3%) and property loss (93.5%) during disaster have greater risk to develop PTSD more than six times compared to those who had not suffered any loose of property'(17.6%) at the significant level of $p \leq 0.05$.

The above data displays a risk of developing PTSD among both the genders, Victims who had no formal education, not working, with low family income. The data also suggest that people who lives single or were not married are at greater risk. Type of disaster experienced also plays cruciate role in development of PTSD. Disaster victims whose lands are being destroyed in disaster had greater threat of developing PTSD. Study also concludes that more the exposure to disaster and life threatening situations and loose of property, the more are the chances of suffering with PTSD.

Table No: 5.1 Association between Demographic and other variables with PTSD

(n=2667)

| S. No | Variable | | PTSD<50 | PTSD>50 | Sig |
|---|---|---|---|---|---|
| 1. | **Gender** | Male | 667 (50.4%) | 654 (49.6%) | .006 |
| | | Female | 628(46.6%) | 718(53.4) | |
| 2. | **Education status** | No formal Education | 209(39.8%) | 315(61.2%) | .0001 |
| | | Primary education | 515 (49%) | 536 (51%) | |
| | | Secondary education | 446 (51.5%) | 420 (48.5%) | |
| | | Tertiary education | 125(55.3%) | 101 (44.7%) | |
| 3. | **Occupation** | Skilled | 231(56.7%) | 176 (43.3%) | .0001 |
| | | Non skilled | 728(50.8%) | 704 (49.2%) | |
| | | No occupation | 336(40.5%) | 492(59.5%) | |
| 4. | **Family monthly income** | <5000 | 30(17%) | 146(83%) | .0001 |
| | | 5001-10000 | 584 (54.3%) | 490 (45.7%) | |
| | | 10001-20000 | 561(47.8%) | 612(52.2%) | |
| | | >20000 | 120(49%) | 124(51%) | |
| 5. | **Marital status** | Single | 42(23%) | 141(77%) | .0001 |
| | | Married | 1247(50.4%) | 1225(49.6%) | |

| | | | | | |
|---|---|---|---|---|---|
| | | Separated | 6 (50%) | 6 (50%) | |
| 6. | **Kind of disaster exposed** | Water | 613(47%) | 689 (53%) | .0001 |
| | | Land | 329(43.2%) | 443 (56.8%) | |
| | | Road | 353 (60%) | 240 (40%) | |
| 7. | **Frequency of exposure** | 1 | 523(50.2%) | 518 (49.2%) | .001 |
| | | 2 | 399 (52.4%) | 362(47.6%) | |
| | | 3 | 373 (43%) | 492 (57%) | |
| 8. | **Duration of exposure** | 1week | 571(47%) | 644(53%) | .0001 |
| | | 2week | 96 (45%) | 117(55%) | |
| | | 3week | 60 (50.8%) | 58 (49.2%) | |
| | | 4week | 568 (50.6%) | 553 (49.4%) | |
| 9. | **Type of exposure** | Potentially life threatening | 60 (6.2%) | 903 (93.8%) | .0001 |
| | | Not potentially life threatening | 1235(72.4%) | 469 (27.6%) | |
| 10. | **Type of loss** | Any impairment/disability/death | 12 (3.2%) | 356 (96.8%) | .0001 |
| | | Loss of property | 53 (6.5%) | 754 (93.5%) | |
| | | None | 1230 (82.4%) | 262 (17.6%) | |

## VI. **Association between Demographic and other variables with Health related QOL.**

Table No 6.1 presents "the association between Demographic, other variables and Health related QOL of the disaster victims". (Mahalingam V & Roy D, 2017) The results shows that the one of significant determinants of Health related QOL of disaster victims was Gender (74.8 ±26.0), where female victims were more susceptible to losing the Health related QOL. Victims educational status showed people with formal education had poorer Health related QOL. Skilled (44.5 ±18.7) occupation victims were reported to have poorer Health related QOL. The victims have higher family monthly income i.e.>20000(47.8 ±17.6) were significantly diagnosed Low Health related QOL. Separated (46.0 ±19.8) from the spouse victims reported significantly decreased Health related QOL. In kind of disaster to have exposure, victims exposed to land related disaster were significantly shown very poor Health related QOL (46.3 ±19.1). The victims had experienced 3 times (73.0 ±28.2) or more significantly loosed their Health related QOL. In duration of exposure the researcher couldn't find any statistical evidence related to Health related QOL of the Disaster victims at the significant level ≤0.05. Potentially life threatening (55.2±15.9) situations experienced victims significantly found to be developed poorer Health related QOL. Study also concludes that more the exposure to disaster and life threatening situations and loose of property, the more are the chances of experiencing low health Quality of life among disaster victims.

Table No: 6.1 Association between Demographic and other variables with Health related QOL

(N=2667)

| S. NO | Variable | | Mean ±S.D | Sig |
|---|---|---|---|---|
| 1. | **Gender** | Male | 81.1 ±25.8 | .0001 |
| | | Female | 74.8 ±26.0 | |
| 2. | **Education status** | No formal Education | 56.9 ±18.3 | .0001 |
| | | Primary education | 51..3 ±19.0 | |
| | | Secondary education | 48.3 ±18.5 | |
| | | Tertiary education | 45.8 ±17.1 | |
| 3. | **Occupation** | Skilled | 44.5 ±18.7 | .0001 |
| | | Non skilled | 49.4 ±17.5 | |
| | | No occupation | 57.0 ±19.6 | |
| 4. | **Family monthly income** | <5000 | 63.80 ±17.9 | .0001 |
| | | 5001-10000 | 49.7 ±17.7 | |
| | | 10001-20000 | 50.9 ±19.5 | |
| | | >20000 | 47.8 ±17.6 | |
| 5. | **Marital status** | Single | 60.3 ±17.0 | .0001 |
| | | Married | 50.3 ±18.8 | |
| | | Separated | 46.0 ±19.8 | |

| | | | | |
|---|---|---|---|---|
| 6. | **Kind of disaster exposed** | Water | 52.1 ±17.9 | .0001 |
| | | Land | 46.3 ±19.1 | |
| | | Road | 52.4 ±19.0 | |
| 7. | **Frequency of exposure** | 1 | 79.2 ±25.2 | .0001 |
| | | 2 | 81.6 ±23.8 | |
| | | 3 | 73.0 ±28.2 | |
| 8. | **Duration of exposure** | 1week | 78.7 ±25.8 | .547 |
| | | 2week | 77.5 ±24.4 | |
| | | 3week | 76.1 ±26.5 | |
| | | 4week | 77.3 ±26.5 | |
| 9. | **Type of exposure** | Potentially life threatening | 55.2±15.9 | .0001 |
| | | Not potentially life threatening | 90.7 ±21.6 | |
| 10. | **Type of loss** | Any impairment/disability/death | 72.32±10.8 | .0001 |
| | | Loss of property | 65.0±10.6 | |
| | | None | 38.1±12.8 | |

## VII. SWOT analysis regarding ongoing Disaster preparedness and mitigation measures.

Table No: 7.1 SWOT analysis regarding ongoing Disaster preparedness and mitigation measures.

| S. No | S- Strength |
|---|---|
| 1. | 1. Active stake holding by NGOs.<br>2. Community resource support (man, material, money).<br>3. Involvement of community at all phases of management.<br>4. Committed sponsors/funders /development agencies supporting disaster risk reduction.<br>5. Support by the State Disaster cell.<br>6. Inter-sectoral coordination. |

| S. No | W- Weakness |
|---|---|
| 2. | 1. The "link between early warning information available and actions taken is currently weak".<br>2. Weak institutional capacity. Skewed focus on Disaster emergency response and longer-term management.<br>3. Inadequate human resources (motivated & trained).<br>4. Lack of an operational 'Disaster Policy' and supportive framework.<br>5. Lack of sensitization & awareness of Disaster preparedness.<br>6. Lack of knowledge on man made "ecological imbalances /climate change and consequences. Inadequate weather and climate data collection; lack of infrastructure and manpower to collect, analyze and disseminate Disaster early warning information".<br>7. Lack of tested & sound preparedness and mitigation plan.<br>8. Evidence of inefficient application of mitigation strategies.<br>9. Limited resource allocation.<br>10. Delay in allocation, approval and disbursement of funds.<br>Limited recourses allocated to support disaster risk reduction institutional structures. |

| S. No | O-Opportunities |
|---|---|
| 3. | 1. To develop a relevant Disaster policy and facilitate its implementation.<br>2. To develop sound& piloted strategies for preparedness and mitigation of disasters.<br>3. To establish/ improve institutional capacity (Infrastructure, trained personnel, mobilization of resource, emergency response).<br>4. To empower the community at all phases management (training and sensitization).<br>5. "Promotion of alternative livelihoods to enhance communities coping capacity including innovative farming technology and practices".<br>6. Creation of a 'multi-sectoral systems approach' for sustainable management.<br>Community endorsed/ sponsored initiatives in furthering outreach services. |

| S. No | **T-** Threats |
|---|---|
| 4. | 1. Top down' management approach without community needs assessment (CNA) and situational analysis.<br>2. Non effective & non replicable preparedness and mitigation plan.<br>3. Inefficient mobilization and allocation of resources among stakeholders<br>4. Abuse of resources and exploitation of real beneficiaries.<br>5. Complacency toward Geo-climatic changes predisposing to Disasters.<br>6. Lack of pro-activeness of community in enhancing and sustaining its capacity for disaster preparedness and mitigation measures. Inadequate intersectoral coordination and communication at the various institutional/stakeholder level. |