**ADAPTATION AND VALIDATION OF COPE EARTHQUAKE SURVIVORS IN PAKISTAN**



**INVENTORY FOR**

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# ABSTRACT

**OBJECTIVE**

To adapt Cope Inventory for cultural differences and specific coping strategies adoptedbyKashmirearthquakesurvivors.

# STUDY DESIGN

Exploratory Study

# PLACE AND DURATION OF STUDY

The study was carried out In Azad Jammu and Kashmir, (Thouri camp in Muzafarabad) Pakistan in a duration of threemonths.

# SUBJECTS AND METHODS

A sample of 221 survivors (men & women) indudingl 23 men and 98 women was taken. The age ranged between 18 years and62 *years.*Participants wereasked to fill out the demographic form, consent form, andCopeInventory.

# RESULTS

Exploratory Factor Analysis was performed on 81 items of the adapted version of COPE. Six factors were developed which werecarefully labeled as religious,passive, active, use of instrumental social support, mental disengagement and focus on and venting of emotions subscales. The total variance of six factors was S7.55% .The Chronbach'salphaof thescale was.83.

# CONCLUSION

COPE is a considerable inventory to examine coping strategies in Azad Kashmir.

# KEYWORDS

Coping strategies, Azad Kashmir, Earth quake survivors.

# INTRODUCTION

Natural disasters can be defined as an unexpected adverse or dangerous incident which causes unlimited damage to property, income, animals, plants, and particularly human beings'.Disasters canbe natural like floods,earthquakes, land slidinganddroughts; or these may also be man- made like suicide bombing,terrorist attacks, technological accidents and wars2• Amongdifferent types of natural disasters,earthquakes havebecome amajorconcern in Pakistan because it is located on a seismic belt. In 2005, a massive earthquake hit Azad Kashmir adversely because of a rapid invasion of seismic pressure near mountains of Himalaya whichcaused ajoltof7.6Mw'. Thisearthquake resulted in thecasualties of almost 86,000peoplewhile138,000were injuredandit alsocaused great destructionof assets'. After the earthquake, survivors were in trauma because theyfelt likeit was the end of their world. Thedistressof losing dear onesand deprivation of basic necessitieshad devastated the lives of the survivors'. A research conducted on 2005 earthquake victims after 18 months of disaster revealed that both men (33.4%) and women (55.2%) had suffered from Post­ Traumatic StressDisorder'.

In 2008,China wasconfronted withamassive earthquake where astudy was carried out ona sample of 2080 participants belonging to the age group of 16-65 years. Researchers found thatmenwere morelikely to get socialsupport and activecoping strategies were predictors of good mental health among survivors'. In another study on earthquake struck China In 2010, researchers found that survivors receiving socioI support were less likely to have depression,anxietyandpost-traumaticstressdisorder'.

Different researchesindicatedthat copingstrategies among earthquake survivors vary from culture to culturebut thereare worldwidesimilaritiesaswell.Researchers(2012)investigated thecoping strategies of 2005 Pakistani earthquake survivors.They foundthat survivorswere morelikely to usereligiouscopingandsocial support to combat theadverse effectsof trauma and high levels of social support was related to positive emotions•,The resultsof this study coincided with another study in 2006 in which massive earthquake struck Indonesians' copingstrategies were studied. Results of their study revealed that religion wasone of the most important strategies to overcome the negative impact of disaster'0• In another studyin Indonesia after an earthquake in 2009, the evaluation of coping strategies of survivors pointed out positive reframing, acceptance, growth, and turning to religion as the most common and participants with poor religious practices were behaviorally and mentally disengaged".

The following research can serve as a milestone to understand the cultural differences in terms of copingstrategies. In 1995, a 7.2 magnitude earthquake affected around 1.5 million peopleinJapan.Anethnographicresearchin 2000 wascarriedouttodiscover theindigenous copingstrategies prevalent there.They found two religious beliefs among survivors such as Fatalism andKarma.Japanese reported that theyconsideredFatalism as fate whilekarmaisa Buddhist term which means difficulties may occur due to the bad behaviors of one's ancestors.These terminologies varyfrom culture to culture.Results also suggested that 80%



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of the survivors wereusingpassive copingandwere less likely to get socialsupport becauseof inflexible familyboundaries1'.

Keeping in mindthe inevitability of coping,it wasimportant to adapt the scaletoexamlne coping strategies of the survivorsof earthquack in the population of risky belt.Thus, the current research aimed to adapt the Cope Inventory developed by Carver, Scheier, and Weintraub in 1989. COPE is based on the Lazarus model of stress (1984). Lazarus and Folkman stated that coping refers to peoples' behavioral and psychological efforts to resolve their stressful circumstances, categorizing it into problem focused and emotion focused". Under these two classes of coping Carver, Scheier, and Weintraub included 14 subscales in COPE which are substance use, active coping, venting, denial, use of emotional support, positive reframing,humor,planning,acceptance,self-blame, self- distraction, behavioral disengagement, use of instrumental support, and religion".

Although COPE is applicable under all kinds of stressful situation", the focus of this research was on coping mechanismsof earthquake survivors who differed in coping tactics because of the existing culturaldifferences16. Objectives of the studyareas following;

* To translate and adapt items of the COPE Scale for earthquake survivors.
* To calculate the construct validity of COPE Scale.
* To estimate the reliability of the COPE Scale and its subscales.

# SUBJECTS /\NDMETHODS

### *PHASEONE: ADAPTATION OFBRIEF COPESCALE*

In the current research the specific purpose of adapting COPE was to use it for indigenous population. For this, some new items and subscale were added to identify specific coping tactics used by Pakistani survivors who were trying to adjust in post-disaster situation. So, after getting permission from author, the researchers studied the scale in detail.First of all,scale was translated in Urdu the processisdescribed below.

#### *Translation of Cope Scale:*

Forward and backward translation was made by the researcher to check equivalence with the original scale. While translating the feeling connotations of the items rather than literal meaning of the original wordswaskeptinmind.

#### *Bilingual Committee Approach:*

Bilingual committee approach was employed to improve backward and forward translation. All of the experts evaluated the initial translation independentlyand suggested a few modifications.These translationswere furtherevaluated and examined by the researchers and two bilingual translators from National Language Authority. Their judgments and consensus yielded a final Urdu version of the COPEScale.

#### *Literature Review:*

Research literature was reviewed from available resources to comprehend the coping strategies implemented by people under stressful circumstances.

#### *Semi Structured Interviews:*

Semi-structured interviews were conducted with the survivors who were counseled and encouraged to elaborate the coping mechanisms which they were using to combat the trauma.In-depth interviews provided an abundance of knowledge regarding coping. On the basis of this information the adapted Cope scale was generated.

#### *Preparationof ItemsPool:*

Based on the information acquired from literature review, semi structured interviews and COPE scale a pool of 105 items was prepared for endorsements. This preliminary set of items was presented to six subject matter experts for evaluating the clarity, fidelity to the construct of coping, and item redundancy. Experts rated 15 items relatively low on relevance to the construct. Hence, 90items were retained. This raw form questionnaire was taken for piloting.

#### *Pilot Testing:*

Piloting was doneon 30participants' survivors with theaim to check the relevance and comprehensibility of the scale. Participants were also asked to add any other coping strategies at the end of the questionnaire,whichthey were using.The survivors did not endorse someof the items, for example, items measuring denial, humor, and self-blame received low scores as compared with religious, active, and venting coping. Participants also described a different kind of copingstrategy, which was not part of CopeInventory. Researchers labeled this category as passive coping, which consisted of nine items.Piloting helpedin the exclusionandinclusionof some itemsin the scale. Moreover, researchers rephrased few items, for example, item no.2 'Igotomovies or watch TVto thinkabout it less "in mental disengagement subscale was transformed as"Istarted to watch films and television". After piloting, the questionnaire consisted of 81 items.

### *PHASE TWO: DETERMINING THE CONSTRUCT* VALIDITY OFCOPE THROUGH FACTOR ANALYSIS

##### Participants

A sample of 221 survivors (men & women) was selected from Azad Jammuand Kashmir, Pakistan.Survivorsselected for finalexploratory

factor analysisincluded bothmen(n=123) and women (n=98) from

Thouricampin Muzafarabad.Thus our sampleconsisted of44% men and 56% women.Theage of the participantsranged between 18 to 62years. Theeducation of the participantsvaried frommatriculation (72%), lntermedia.te (19%), Bachelors (6%) and Masters (3%). Thirty five percent of the participants were unmarried whilethe remaining 65%was married. The predominant socioeconomic class among the survivors waslower-middle class.

##### Procedure

Permission was obtained from all participants on the grounds of confidentiality, <1nonymity and informed consent. They were also given an explanation and a general idea of coping in order to elicit relevant information for thisresearch. After datacollection, principle component analysis was run on the remaining 81 items. After

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completing data collection for phase II, construct validity of COPE scale was estimatedby applyingfactoranalysis.

## RESULTS

Exploratory Factor Analysis was performed on 81 items of the adapted versionof COPE to ensure the dimensionality and validityof the scale. Factors were extracted through using varimax rotation. Varimax rotation was *done* to obtain maximum interpretable factors". Initial findings of correlation matrix justified appropria­ tenessofdata to run factor analysis.

*The* data was further tested for assumption of sphericity. Bartlett's test of sphericity was used for this purpose". Findings showed that Bartlett's test of sphericity was significant (p<.000). It demonstrated that the data was fit for further evaluation of potential factor structure of items of BriefCopeScale. The Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy was estimated also.KMO's resulting value was.755 which indicated that the samplesizewasadequate to apply factoranalysison data"-

Basedon the criteriaofField(2005), those factors wereretained in the scale which had: (a) an un-r-otated eigen value > 1 with a factor loading of 0.40; (b) a simple factor structure showing each factor distinct from one another; (c) an interpretability, that the factor represents ameaningful underlineddimension'0• TheKaiser criterion was used to determine number of 'meaningful' components or

factors". Kaiser-Guttmann's retention criterion of eigen values greaterthan 1yielded ninefactors.Basedon the preliminary findings, principal component analyses were conducted using nine, eight, seven,and six factor solutions byemploying varimaxrotation.Thesix factorssolution provided the best estimate of simple structure with the few cross-loadings and it yielded the most interpretable solutions.The factor loadings and communalities based on rotated factor solutionsarepresentedin Table 1.

The six factor solution was preferred over other factor solutions due to the following reasons: {a) it resulted in the most robust factor structure; i.e., it yielded items with stronger factor loadings (> .40) and fewer cross-loadingsthanothersolutions; (b) there wereno clear conceptual differences between the items representing seven and eight factors;and (c) the communalitiesof all itemswerealsogreater

than .40. 22 The six factors accounted for: 16.839%, 11.817%,

10.581%, 7.279%,6.320% &4.716% variance respectively.The overall varianceexplained by all thesefactors accounted for 57.55%.

Finally, 40 items wereexcluded.Theremaining 41itemswerelabeled as a) religious b) passive, c) active, d) use of instrumental social support e) focus on and venting of emotions, and f) mental disengagement. Three doctoral students and two subject matter experts cautiously read all items and labeled them accordingly. All experts drew almost similar conclusions regarding each factor.

Hence, the adapted version of COPE is a valid scale with a 5 point

likertresponse format.

### *PHASE 3: ESTIMATING CHRONBACH'S ALPHA* RELIABILITY

The total 41 items of the adapted Cope Inventory and subscales (six factors) were subjected to reliability analysis using Chronbach's

Alpha coefficient method. Results are presented in the following tables:

**Tablet**

EFA factor loadings andCommunalities of the 41 item adapted COPE

scale (N=22l ).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item | Item Description | I | 2 | 3 | 4 | *5* | 6 | h |
| I | I seek Allah's help | .87 |  |  |  |  |  | .76 |
| 2 | I ask people who have had  -similar experiences what they did |  |  |  | .58 |  |  | .45 |
| 3 | I started keeping to myself &  $1:0pped meeting people |  | .66 |  |  |  |  | .57 |
| 4 | J take additional action to try to get rid of the prc,blem |  |  | .79 |  |  |  | .64 |
| *5* | l tum 10 work.nr other substitute  activities *tu* take my mind ofT  1hi11gs. |  |  |  |  |  | .65 | .48 |
| 6 | J concentrate my efforts ondoU1g  QmC!.lhing about it. |  |  | .74 |  |  |  | .67 |
| 7 | 1 put my trust in Allah | ,89 |  |  |  |  |  | .86 |
| *R* | T ny 10 ge1advice from someone  who about what to do |  |  |  | .67 |  |  | .47 |
| 9 | After tho earthquake, I sta1ted to keep thoughts to myself |  | .46 |  |  |  |  | .56 |
| 10 | I dowhat has to bedone onestep  ata time |  |  | .73 |  |  |  | .62 |
| II | I slec11 more than usual |  |  |  |  |  | .72 | .56 |
| 12 | l take direct action 10 get around the probh::m |  |  | .61 |  |  |  | .49 |
| 13 | I try to lind comfort in my  religion | .84 |  |  |  |  |  | .74 |
| 14 | I fotmd the fellow etfectees a source of help |  |  |  | .46 |  |  | .52 |
| 15 | I fi.nd myself helpless and feeble |  | .67 |  |  |  |  | *\_(,4* |
| 16 | ·1vcstarted to think about  changing my circumstances |  |  | .69 |  |  |  | .58 |
| 17 | [ $tarted 10 watch films and  television |  |  |  |  |  | .69 | .61 |
| Jg | I know that my circumstances  hrwe changed and will not be? thesame as they were before thee.trd1quakc. |  |  | .78 |  |  |  | .67 |
| 19 | I pray more than usu:ll | .84 |  |  |  |  |  | .74 |

*Nore: Religious Coping:* I, 7, *13, I9. 24, 29, 34. 36, 37* & *39. Pas.cive*

*Coping: 3. 9. 15. 21. 26. 31. 33. 38* & *40. Active Copi11g: 4. 6, 10. 12. 16.*

*18, 27. 35. Use o/!11.;·/rume11ta/ Soehl/ Support: 2. 8, 14, 2(), 22, 25, 30&*

*32. Focus 011 and Ve111i11g 0/£1110/iuns: 23, 28 & 41. Mental Disengagemem: 5, I I* & *I7*

**Table** 2

Reliability Analysisof adapted COPE scale(N=22 I)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *M* | *SD* | **Varillncc** | ***a*** |
|  | 143.25 | 11.90 | 141.72 | .83 |

**Table** 3

Reliability Analysis of the six factors of 41 item adapted COPE scale (N=221)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **F clon** | ***k*** | **M** | **SD** | **V** | **11** |
| Religious Coping | 9 | 43.14 | 6.28 | 39.56 | 92 |
| Passive Coping | 9 | 2099 | 4.45 | 19.82 | .86 |
| Acliv Coping | 8 | 34.20 | 4.36 | 19.09 | .84 |
| Useof Instrumental Social S11ppo1t | 8 | 27.55 | 4.17 | 17.40 | .73 |
| Focu on and Venting of Emotions | *3* | 6.74 | 2.06 | 4.25 | .92 |
| Mental Diseagamem | 3 | 8.36 | 1.53 | 2.35 | .57 |

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# DISCUSSION

This study aimed to translate and adapt COPE scale that quantitatively measures the coping strategies of the earthquake survivors. Another objective of this study was to obtain a psychometrically sound adaptation of COPE, and to achieve this objective, factorial validity of the adapted COPE was estimated in addition to examining its reliability. This adapted COPE scale represents advancement in the measurement of coping strategies of the earthquake survivors. The adapted scale was developed by reviewing relevant literature, conducting in-depth interviews, undertaking qualitative data analyses and piloting to identify indigenous Pakistani coping mechanisms which are distinct to the earthquake survivors. Six indigenous items were included in the religioussubscale. Forexample,I recitethe HolyQuran.Similarly, few items were also included in other subscales. The adaptation procedure resulted in 81item self-report measure.

Exploratory factor analysis was conducted to examine factor structure of adapted COPE Scale".It resulted in six factors (41items) thatweremeaningful andwere falling in their relevantcategories. Six inter-related but independent dimensions underlying the indigenouscopingstyles were:a) religiousb) passive,c) active, d) use of instrumental social support e) focus on and venting of emotions, and f) mental disengagement. Thisbest fitted model accounted for 57.55% of total variance. The adapted scale varied from Cope Inventory in many ways. First of all, .a new category of "passive coping"was merged.It is obvious that traumatic incidentsprovoke a feeling of helplessness or lack of control over what is happening around". Previously in a study in 2004, Mexican disaster survivors also used passive coping to deal with theunfavorable circumstances ". An interesting comparative research was conducted on Pakistani earthquake survivorsin 2011.

The results revealed that Azad Kashmir survivors were two times more likely to use passive coping thanNWFP survivors because Azad Kashmir was one of the most affected areas than any other city of Pakistan".

The adapted scale eliminated the categories of denial and restraint copingbecause the data wascollected after one year of disaster and the victims werewellawareabout whathad taken place.Duringthe studysubstance abusewasnot found.

The impact of religiosity was at the peak which can be one reason why the category of substance abuse received low factor loadings. Theresults of variousstudieson earthquake victimsalsoshowed that religion is one of the most important coping strategies among survivors•·• ". Moreover, survivors were busy in rebuilding houses, getting food, water, shelter, health services, education and going back to work because earthquake seized the basic necessities of life which needed to be restored. So, adverse circumstances also positively motivated the survivors to combat with the trauma. This can be another reason why the results showed no restraint coping among survivors rather they were actively working on solving their problems"'. Other factors Iike use of instrumental social support, mental disengagement, and focus on and venting of emotions coping skills coincided with Cope Inventory because earthquake caused a lot of damage which could not be re-established without the help of local bodies, organizations and resource persons.Hence,

survivors werefocusingon instrumental socialsupport.

They werealso expressing emotions and feelingsregardingnegative impact of disaster which was a source of catharsis". Aresearch on Chile earthquake victimsalso revealed that victims often engage in social activities and vent to over-come the negative effects". Further, victims using positive coping strategies also mentally engaged themselves in constructive activities such as offering prayers, participating in welfarework,watchingtelevision and films.

They weremaking attempts to returnbackto normal routineinstead of dwelling over theadverse incident. In this way,the adapted scale captured the true coping mechanisms of earth quake survivors with adequateinternal validity.

Further, Chronbach's alpha of the scale was .83.Hence, the adapted version of Cope Inventory has significant psychometric properties and wellpreparedto be applied undertraumatic situations.

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