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# COPING WITH PSYCHOLOGICAL IMPACT OF DISASTERS THROUGH PHYSICAL EDUCATION AND SPORTS AMONG CHILDREN LIVING IN DISASTER-PRONE AREAS

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## Abstract

*The focus of this paper was to explain the concept of disaster, its impacts on sports and recreation facilities and how disasters can be prevented in schools. It also addressed how to cope with psychological impact of disasters among children through physical education and sports.*

**Keywords:** Disaster, children, physical education, sports

## Introduction

We live in a demanding and perilous world that is increasingly affected by disaster events caused by either natural or man-made activities. Recent decades have seen significant growth in the number of reported disasters – such as floods, cyclones, drought, hurricanes, volcanic eruption, environmental degradation, earthquakes, tsunamis, fires outbreak, outbreak of diseases, Boko Haram, etc (Back and Cameron, 2008). More and more people are being adversely affected by these events, with Nigeria particularly hard hit by rapid onset emergencies and the negative impacts persist into the long-term, well beyond initial mortality and infrastructural damage to include negative impacts on health, education, nutrition and morbidity. The science tells us that some of these disasters are likely to be exacerbated by climate change (Back and Cameron, 2008).

Disasters when they occur usually result in pains and huge losses to the economy and in most cases; it is always difficult to quantify the actual cost of damages and recovery. A single case of disaster such as the one that occurred in Lagos, Nigeria on July 10, 2011 actually destroyed several years of developmental efforts. In flood disaster, there are loss of lives, destruction of public utilities and disruption in the smooth functioning of the system that renders fear and uncertainties among the populace (Idowu, 2011). In addition, there was loss of livelihoods, damage to the environment, financial loss, and diversion of resources, epidemics, migration, food shortages and displacement of the people

## Concept of disasters

The International Federation of Red Cross and Red Crescent Societies (IFRC) (2014) defines disaster as sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature sometimes, disasters can have human origins. The combination of hazards, vulnerability and inability to reduce the potential

negative consequences of risk results in disaster. A disaster is an occurrence disrupting the normal conditions of existence and causing a level of suffering that exceeds the capacity of adjustment of the affected community (World Health Organization /Emmanuel Hospital Association, 2002). Central Board of Secondary Education (2006) defined disaster as 'a serious disruption in the functioning of the community or a society causing wide spread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources'.

Natural hazards are not occasional phenomena with unfortunate consequences. Floods, wind and ice storms, earthquakes, drought, volcanic eruption, and tsunami led to about 400 national disasters, an average of 74,000 deaths and more than 230 million people affected every single year (Centre for Research on the Epidemiology of Disasters (CRED), 2008). Local disasters and pandemics double these numbers. Three-quarters of the world's population were affected by these phenomena at least once between 1980 and 2000. Each time a disaster occurs, masses of children are excluded from school, many never to return (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2007). Floods alone affect upwards of 500 million people per year. Worldwide, 450 cities each with a population over 1 million face recurring earthquakes. Cyclones, typhoons and hurricanes are amongst the deadliest and costliest of disasters. Droughts and desertification now affect 250 million people and threaten 1.2 billion in 110 countries (UNESCO, 2007).

The poor in the society have been identified to be the most of the victims of flood, by having no choice, but to end up living in flood prone areas (Lutz, Sanderson, and Scherbov, 2008). In the view of Stephen (2011), the loss of life due to flood is lower in the developed countries compared to the developing countries. The assertions of Stephen (2011) and Lutz, Sanderson, and Scherbov (2008) appeared to be right because in developing countries, there are absence of effective zoning regulations, flood controls, emergency response to infrastructure and early warning systems. Today's children will bear a disproportionate share of the impact, both in the immediate and longer-term, as documented by a number of recent reports. Children all over the world are highly vulnerable to climate change and disaster impacts, while those of them living in marginal environments and situations of poverty are more vulnerable still (Oxfam, 2009). The high mortality and morbidity rates among children during and after extreme events was particularly evident following the 2004 Indian Ocean Tsunami, where the largest numbers of fatalities were women and those under the age of fifteen (Telford, Cosgrave and Houghton, 2006)

A wealth of evidence indicates that children experience the effects of disaster doubly. Even very young children are directly affected by experiences of death, destruction, terror, personal physical assault, and by experiencing the absence or powerlessness of their parents. They are also indirectly affected through identification with the effects of the disaster on their parents and other trusted adults (such as teachers) and by their parents' reactions to the disaster (Ehrenreich and Sharon McQuaide, 2001). Tanner et al. (2009) stated that pre-school children (ages 1-5), anxiety symptoms may appear in generalized form as fears about separation, fears of

strangers, fears of 'monsters' or animals, or sleep disturbances. The child may also avoid specific situations or environments, which may or may not have obvious links to the disaster. The child may appear pre-occupied with words or symbols that may or may not be associated with the disaster in obvious ways or may engage in compulsively repetitive play which represents part of the disaster experience. The child may show a limited expression of emotion or a constricted pattern of play may appear. He or she may withdraw socially or may lose previously acquired developmental skills (e.g., toilet training)

Older children (ages 6-11 or so) may engage in repetitious play in which the child re-enacts parts of the disaster or in repeated retelling of the story of the disaster. The child may express (openly or subtly) concern about safety and preoccupation with danger. Sleep disturbances, irritability, or aggressive behaviour and angry outbursts may appear. The child may pay close attention to his or her parents' worries or seem to worry excessively about family members and friends. School avoidance (possibly in the form of somatic symptoms such as pain or fatigue) may appear. The child may show separation anxiety with primary caretakers, 'magical' explanations to fill in gaps in understanding, and other behaviours usually characteristic of much younger children. Other changes in behaviour, mood, and personality, obvious anxiety and fearfulness, withdrawal, loss of interest in activities, and 'spacey' or distractible behaviour may appear (Tanner et al., 2009).

As children approach adolescence, their responses become increasingly like adult responses. Greater levels of aggressive behaviours, defiance of parents, delinquency, substance abuse, and risk-taking behaviours may be evident, school performance may decline, wishes for revenge may be expressed and adolescents are especially unlikely to seek out counselling.

Children of all ages are strongly affected by the responses of their parents or other caretakers to disaster. Children are especially vulnerable to feeling abandoned when they are separated from or lose their parents. 'Protecting' children by sending them away from the scene of the disaster, thus separating them from their loved ones, adds the trauma of separation to the trauma of disaster (Tanner et al., 2009). Symptoms shown by school-aged children include: depression, withdrawal; generalized fear, including nightmares, highly specific phobias of stimuli associated with the disaster; defiance, aggressiveness and 'acting out', resentfulness, suspiciousness, irritability; and disorganized, 'agitated' behaviour. Others are somatic complaints headaches, gastrointestinal disturbances, general aches and pains—which may be revealed by a pattern of repeated school absences; difficulties with concentration; intrusive memories and thoughts and sensations, which may be especially likely to appear when the child is bored or at rest or when falling asleep; repetitive dreams, loss of a sense of control and of responsibility, loss of a sense of a future, loss of a sense of individuality and identity, loss of a sense of reasonable expectations with respect to interpersonal interactions; loss of a realistic sense of when he or she is vulnerable or in danger; feelings of shame; ritual re-enactments of aspects of the disaster in play or drawing or storytelling—in part, this can be understood as an attempt at mastery.

Drawings may have images of trauma and bizarre expressions of unconscious imagery, with many elaborations and repetitions. At some other times, there may be: kinaesthetic (bodily) re-enactments of aspects of the disaster: repetitive gestures or responses to stress re-enacting those of the disaster; omen formation—when the child comes to believe that certain 'signs' preceding the disaster were warnings and that he or she should be alert for future signs of disaster; regression, including bedwetting, soiling, clinging, and heightened separation anxiety; and post-traumatic stress disorder syndromes, much like those of adults, although possibly with less amnesia, avoidance, and numbing evident.

The impact of disasters on humans is not only physical but also psychological; natural disasters could cause extensive loss and damages to psychological wellbeing, the economy, and society, extensive loss of life, damage of physical facilities, and impact on socio-economic conditions are caused by natural disasters (Jogia, Kulatunga, Yates, and Wedawatta, 2014; Yonekura, Ueno, and Iwanaka, 2013). A natural disaster becomes a large-scale environmental stressor for a community because it happens suddenly, unexpectedly, and extensively damages lives (Aslam and Tariq, 2010).

The psychological impact is more visible after some occurrences of natural disasters, like earthquakes, tsunamis, floods, fires, hurricanes, typhoons, and volcanic eruptions. The damaging natural disaster always leads to psychological impact (Jogia, Kulatunga, Yates, and Wedawatta, 2014; Mondal, Sarkar, Banerjee, Hazra, Majumber and Sabui, 2013). Furthermore, survivors who are affected socially, economically, and psychologically may change their behaviours after a disaster (Jogia, Kulatunga, Yates, and Wedawatta, 2014). Some individuals may show permanent psychological symptoms after experiencing disaster (Aslam and Tariq, 2010). Research results have shown that levels of general psychological distress are visible at 12 months and that post-traumatic stress reactions may continue until 18 months after a disaster (Aslam and Tariq, 2010). Ronholt, Karsberg, and Elklit (2013) emphasized that disasters could affect whole societies, especially a negative psychological impacts on children.

Many studies have examined the psychological impact of the disaster on children (e.g. Feldman, 2010; Kar, 2009). The psychological impact on children of both natural and manmade disasters is not always be recognized by parents (Mondal, et al., 2013). Secondary traumatization to the entire family can occur (Kilic, Ozguven, and Sayil, 2003). Uemoto, Asakawa, Takamiya, Asakawa, and Inui (2012) find that severe fear, anxiety, depression or physical symptoms are found in family members after earthquakes. Mondal et al. (2013) show that loss of family members, structural devastation, or a fear response results in emotional deterioration for children and that stress symptoms begin to appear immediately. Children manifest trauma through psychological and behavioural changes, and often go unidentified (Kar, 2009). Exposures to individuals suffering injuries, those who are dying or dead are common occurrences after a disaster strikes (Ronholt, Karsberg, and Elklit, 2013). On the other hand, sometimes the effect of a disaster on the mental health of children is indecipherable (Uemoto, Asakawa, Takamiya, Asakawa, and Inui, 2012). A child's developmental stage of cognitive and emotional maturity and use of coping strategies

determines his/her psychological reactions to disaster (Kar, 2009). Meeting a child's needs is dependent on others, both during and after a disaster (Yonekura, Ueno, and Iwanaka, 2013). Children who have lost their parents in a disaster need social support and mental health over the long term, and need comprehensive intervention and psychological support afterwards (Uemoto et al., 2012)

### **Direct impacts of disasters on sports and recreational facilities**

Asian Disaster Preparedness Centre (2008) highlights the following direct impacts of disasters on sports and recreational facilities include the following:

- Reduced irrigation of dedicated sports grounds and public open space.
- Increased evaporation requiring more water for existing turf.
- Reduced playing surface quality.
- Damage to facilities such as tennis courts and cricket pitches.
- Forced, permanent or temporary closure of facilities.
- Increased evaporation at open water facilities.
- Reduced access to shared facilities.
- Reduced flushing of waterways.
- More potentially harmful algal blooms limiting direct contact recreational water pursuits.

### **Indirect impacts**

- Alternative water supplies become more expensive.
- More frequent monitoring and reporting of facilities, water-use efficiencies
- Greater reliance on user-pays for facilities and services
- Compromised fitness-related health programmes.
- Reduced opportunity for freshwater-based recreational pursuits.
- Increased coral bleaching and reef death affecting recreational ping.

### **Disaster Prevention for Schools**

'Disaster Reduction Begins at School' was not just the catchy slogan for the UN International Strategy for Disaster Reduction's 2006-8 global campaign. It is instead an abiding truth, a fervent hope and a call to action. Known and expected hydro-meteorological and geological hazards do not have to result in disasters. Disaster risk reduction scientists and advocates are convinced that the practical and technical knowledge already exists to prevent most of the losses of life, limb, livelihood, community, and cultural heritage that increasingly attend these natural hazard events (Petal, 2008).

Basic education and disaster prevention go hand in hand. The methods for recognizing and assessing the future impact of hazards, vulnerabilities and risks and identifying strengths and capacities happen to contain the fundamentals of scientific thinking as well as the basics of good citizenship and participatory governance (Petal, 2008). The values, attitudes and technologies needed for physical protection; informed planning, environmental stewardship disaster-resilient design and construction, are the same as those fundamental to sustainable development and livelihood security. The skills and provisions for disaster response are empowering and confer safety in



everyday life. Disaster resiliency is built upon a foundation of analytical and problem-solving skills and draws from the development of personal and inter-personal intelligences (Petal, 2008).

Fortunately, disaster risk reduction is not just 'one more thing' to be squeezed into an already full curriculum. It may well be the glue that ensures the survival of our children and future generations. Progress on millennium goals notwithstanding, unsafe schools have and will continue to betray the trust and hope that placed in them, unless educational authorities and communities are conscious and pro-active. Children and teachers will continue to be killed and injured in huge numbers, while at work in their school classrooms, unless responsibility is jointly taken now to make them safe (Petal, 2008). Children will continue to be excluded from school because plans have not been made for fully expected and recurring hazards, unless school communities take responsibility now for contingency planning. All of these are within our grasp—and all convey the poignant truth that humankind sustains itself through the power of education.

### **Co-curricular Education in Disaster Prevention and Preparedness**

Co-curricular education can take many forms, and in most cases can offer a low cost and quickly mounted introduction to disaster prevention. It often provides the opportunity to introduce and to reinforce important and consistent lessons. The most obvious of these are disaster drills of several kinds depending on the hazards faced. The skills to respond to drills are taught ahead of time during school assembly and in the classroom. These drills, conducted throughout the school year, ideally take place at different times of the school day, and without warning, allowing practice, reflection and improvement (Petal, 2008).

An annual School Safety Day may be observed on International Day for Disaster Reduction (during the second week of October) or in remembrance of a major national disaster. These can become an important event for the whole school community and create space for a wide range of awareness activities. Assemblies offer the opportunity to reach all children through announcements, short didactic sessions, theatrical skits, oral history, story-telling, puppetry, magic, videos, learning rhymes or songs, providing take home material, announcing competitions, playing games, practicing drills, and hosting guest speakers. Guest speakers can include survivors of disasters who can provide live lessons, civil protection staff, fire department educators, Red Cross/Red Crescent Society representatives, local non-government programme staff or volunteers. News coverage of disasters in other places, and support campaigns can be opportunities to engage in discussion and proactive measures at school (Petal, 2008).

After-school activities offer the opportunity to engage smaller groups of children in skill-building and voluntary service activities through 'safety clubs', scouting badges, and similar ongoing efforts. After school programmes provide an opportunity to develop awareness materials and displays, plan games and engage in performances and art projects to communicate with others. Voluntary drawing and writing competitions will engage many children. Small-scale models, for example, shake table demonstrations are also powerful hands-on tools, documentary videos, storybooks,

comic books, activity books, toys and games will engage others. Knowledge competitions will generate student, community and mass media interest.

Parent meetings, parent-teacher association or school welfare committee meetings, wider community fairs and 'open house' can be important opportunities for co-curricular education. Displays of student-created risk and capacity maps, student art work and essays generate interest. Community members may also engage as volunteers helping to secure furnishings against earthquake shaking or dig channels to direct rainwater away from building. Moreover, cultural arts, music, song, poetry, dance, puppetry, magic, street theatre, improvisation, pantomime, or artwork are appealing, engaging and creative ways to introduce this important subject area. Sports Day activities are an excellent time for drills and demonstrations, as well as for games that introduce cooperative response skills (eg. Water bucket brigade competition, fire extinguisher target practice, injury transport relays, and knowledge games). Dissemination of written materials, use of posters and signage, displays and artwork are subtler but important ways to share disaster risk reduction messages. Awards, commendations and media coverage can acknowledge the activities and help generate enthusiasm for reproducing them.

### **Children as Disaster Reduction Catalysts**

The United Nations International Strategy for Disaster Reduction (UNISDR) worldwide awareness campaign 'Disaster Risk Reduction Begins at School' in 2006-7 helped disaster prevention advocates to discover an important axiom; 'Let the Children Teach Us' (Wisner, 2006). As many social change-oriented efforts have long-known; children are important catalysts for carrying public health and safety messages home to families. Linking school and community-based education helps to foster self-efficacy, action-oriented coping and strengthens the community networks needed for resilience and survival. These links assure the sustainability of school safety efforts. School-wide activities open to the public (assemblies, fairs, festivals, exhibits, competitions) engage parents and local communities. School-based initiatives can engage and provoke local government (Schick, 2007 in UNISDR, 2008). Iran's national school earthquake drills are preceded by radio, television and news coverage reaching virtually every household. As a result of their commitment to children, school communities are uniquely positioned to adopt a leadership role in determining their own futures (Action Aid, 2007). The idea behind 'child-led' efforts is the belief that children can play an active role in community affairs relevant to them, including disaster prevention, especially if they are appropriately trained and supported by adults. Rather than being seen as victims, children who learn disaster risk reduction can help adults to protect community members

### **Coping with Psychological Impact of Disasters**

Physical Education (PE) and sports can serve as a psychological intervention. PE and sports are typically the only disciplines within a school's curriculum that address problems relating to the physical and psychological health of students (Curelaru, Abalasei, and Cristea, 2011). Health-related PE approaches may improve the

psychosocial benefits for children in community health programmes (Piko and Keresztes, 2006). Therefore, physical activity has an important role in the psychological wellbeing of a student (Piko and Keresztes, 2006). Sports and play activities can assist youth to non-verbally access, express, and resolve a myriad of troubling issues (Henley, 2005). The opportunity to learn new problem-solving skills, manage emotions, and behaviour, and form healthy relationships is provided through sports and play programmes (Henley, Schweitzer, de Gara, and Vetter, 2007). Children can express difficult or painful emotions, wishes, fears, concerns, and fantasies, both verbally and non-verbally through play. Re-enactment of traumatic experiences may also surface during play (Kar, 2009).

Disasters produce a great amount of stress and anxiety, both immediately and over the weeks and months that follow. Kar, (2009), Ronholt, Karsberg, and Elklit, (2013), Uemoto, Asakawa, Takamiya, Asakawa, and Inui (2012), Moghaddam, Mehrdad, Salehian and Shirmohammadzadeh (2012) and Wahl-Alexander and Sinelnikov (2013) concluded that a variety of techniques may be useful in reducing psychological impact of disasters. These are discussed below.

### **Stress Reduction Techniques**

**Rest and recreation:** Both brief periods of rest in the course of the day's activities and adequate sleep are important, both for relief workers and survivors. Understandably, the emergency created by a disaster may interfere with these in the first hours or days after the disaster. As soon as the most urgent, life-and-death rescue needs are met, however encourage relief workers to permit themselves to take a break or a short nap and ensure that adequate facilities are available for these. Encourage those supervising relief efforts to schedule relief workers shifts so as to ensure that the workers get adequate sleep. Recreational activities, ranging from card games to watching television to participating in games may be helpful, both for adults (relief workers and primary disaster victims) and for children and adolescents. In part, these serve as a diversion, preventing 'ruminating' about the disaster. They also help restore a sense of normalcy and control over one's life

**Ventilation:** Allowing survivors to talk about their experiences and feelings in both informal and formal settings relieves stress. Repetitive restatements or rumination, however, do not relieve stress and may promote depression, however, and should be discouraged. Divert the discussion on to other topics, provide diversions, or use other approaches to promoting relaxation. Also, **physical activity** helps dissipate stress, it provides opportunities for relief workers and primary disaster victims (e.g., in a shelter) to get exercise: taking a walk, jogging, engaging in a group exercise 'class,' engaging in an athletic event, dancing among others.

There are **relaxation exercises**, in which several types of relaxation exercises are easily adapted for use in disaster settings to help children reduce anxiety and stress. These include breathing exercises, visualization exercises, muscle relaxation exercises, and combinations of these. In **breathing exercises**, children are taught to breathe in a controlled way, while attending closely to their own breathing.

**Visualization exercises:** The children are asked to provide an account of a setting or situation he or she finds very relaxing (e.g., walking in the woods) and is then asked to visualize this scene in a very detailed way. The particular scene to be visualized should be worked out in discussion with the intended user of the exercise. Moreover, in **muscle relaxation exercises**, children are asked to practice first contracting, then relaxing different muscle groups until the entire musculature is relaxed, while concentrating on the feelings of relaxation in the muscles.

### **Expressive Techniques**

It is difficult for children to discuss their emotional problems, their verbal abilities are relatively undeveloped and they lack facility at labelling their emotions. This is especially the case for children below age eleven or so, but even older children and adolescents, and not a few adults, may have difficulty or inhibitions about explicitly talking about their feelings. In these settings, techniques that permit expression and exploration of feelings in non-verbal form (e.g., play, art, dance, games) or in forms that, although they use words, do not require the person to explicitly identify and label emotional states (e.g., writing poetry, role playing, puppet play) are useful. These techniques can be collectively labelled 'expressive techniques.' Underlying these techniques is the notion that plays, artistic creation, and similar activities are systems of communication and interpersonal interaction. Through play and similar activities, the child reveals meaningful information about his or her emotional problems, inner thought processes and states, desires, and anxieties.

As with conventional verbal techniques, the goals of expressive techniques include ventilation of feelings, creating a new narrative about terrifying events, regaining a sense of control and mastery, working through grief, finding and feeling support from peers, and normalizing unexpected and unfamiliar reactions. They also help establish a trusting relationship between the child and the sport psychologist. Expressive techniques are commonly used with children up to the age of eleven, and with children as young as two to four. They can be used with people of any age, however, in what follows, the word 'child' will be used to indicate the person with whom the technique is used, with the understanding that the 'child' may, in fact, be an adolescent or adult. Expressive techniques can be used with a single child, but are also easily adapted for groups (either ad hoc or a school class). In some cases, children experience a disaster but the parents do not experience it directly. This would be the case, for example, if there were an explosion or other violent incident at a school. In these circumstances, although parents might benefit from group debriefing sessions, the children might be treated in their classes. If, however, the child's parents were themselves also primary victims of the disaster or if the child is especially distressed, it may be helpful to involve the whole family unit together. A mix of expressive and verbal techniques might then be used.

### **Conclusion**

Disaster such as earthquake, tsunami, flood, fire, hurricane among others is a sudden occurrence that is influenced by both natural and external forces. Disasters when they occur usually impact negatively huge losses to the economy, education, nutrition and

health of the citizens. The psychological wellbeing of children living in disaster prone areas is then altered and symptoms shown by these children include stress, anxiety, depression, withdrawal, generalized fear including nightmare, deviance, aggressiveness, intrusive memories and thoughts and sensations, loss of sense of individuality, feeling of shame among others. Physical Education, physical activity and sport such as breathing exercises, relaxation exercises, visualization exercises, expressive activity like role playing, puppet play, dance, game, art etc. could be used to deal with psychological impacts of disasters among children living in disaster prone areas and improve their physical and psychological wellbeing. Physical education and sport specialists should be employed to teach and impart the necessary techniques to deal with psychological wellbeing of children living in disaster prone areas. Also, P.E, physical activity and sport should be inculcated into the programme of the affected children. Adequate materials that could aid the teaching should be provided.

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