



13TH INTERNATIONAL RESEARCH CONFERENCE

HOLISTIC APPROACH TO **NATIONAL GROWTH** AND **SECURITY**

15TH - 16TH OCTOBER 2020

Medicine

PROCEEDINGS



General Sir John Kotelawala Defence University



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General Sir John Kotelawala Defence University

Ratmalana, Sri Lanka



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Welcome Address

Major General Milinda Peiris RWP RSP USP ndc psc

Vice Chancellor, General Sir John Kotelawala Defence University

Honourable Minister of Education, Professor G L Peiris, the Chief Guest, Keynote Speaker, Secretary to the Ministry of Education, Professor Kpila Perera, Secretary to the Ministry of Foreign Affairs, Admiral Prof. Jayanath Colombage, Deputy Vice Chancellor (Def & Admin) Brig. Nanda Hathurusinghe, Deputy Vice Chancellor (Academic) Prof. Jayantha Ariyaratne, Deans of the respective Faculties, Directors of Centres, Academics, Senior Military Officers, Administrative Staff, Students and all distinguished guests who are connected with us in the cyber space.

First and foremost, let me very warmly welcome our chief guest, Hon Professor GL Peiris, Minister of Education for very kindly accepting our invitation and for gracing this occasion as the chief guest of this inaugural session of our international research conference 2020.

Sir, we consider your presence here this morning, as one of the most renowned scholars the country has ever produced in the field of Law, as a great honour to KDU. Let me also warmly welcome our keynote speaker, Prof Kapila Perera, Secretary to the Ministry of Education, who is having a very close affinity with KDU as an illustrious member of our alumni association.

Then I also welcome Admiral Professor Jayanath Colombage, Secretary to the Ministry of Foreign Affairs, and other distinguished guests and invitees participating on line as well. KDU, from its inception, was instrumental in handing down the core values of security to the development paradigm in Sri Lanka.

This year's theme 'Holistic Approach to National Growth and Security' highlights the importance of maintaining a harmonious blend in security and development in all national projects. As you are aware, this year's conference is taking place amidst very challenging circumstances, so much so that, it becomes a landmark event of KDU in terms of its resolution to ensure the continuity of events at KDU even under the most trying circumstances. And this conference is also significant because the year 2020 marks 40 years of existence of KDU since its inception in 1980.

KDU, initially established as a tri-service academy known then as KDA or Kotelawala Defence Academy, marked a significant diversion in 2008 with its renaming as General Sir John Kotelawala Defence University. Since then, with the guidance and vision of His Excellency the President Gotabaya Rajapakse, as the then Secretary to the Ministry of Defence and the Chairman of our Board of Management, KDU kept a giant leap forward to become a fully-fledged university with nine academic faculties and a University Hospital with state-of-the-art facilities. With this phenomenal change, KDU began expanding its horizon to provide its high-quality higher educational opportunities to civilian students, thereby reducing the burden on other state universities of the country in supplying for the higher educational demand in the country. Today, the University is ready to march forward steadfastly contributing to the national needs combining the national security domain with higher educational needs of the country.

Ladies and gentlemen, KDU international research conference has been attracting local and foreign presenters, participants and more importantly renowned scholars and professionals of the highest caliber both locally and internationally. However, in this year, the global pandemic situation has restricted having them physically present at KDU. But many of our invitees will join us on line to enrich the deliberations through this novel experience of having the conference on a virtual platform.

I reckon that this is a blessing in disguise for us to travel on untrodden paths for new discoveries. KDU IRC has been instrumental in establishing and strengthening the much needed research culture not only at KDU but also in the whole country.

We have been attracting papers from almost all universities, from many research institutions and other organizations representing even Batticaloa and Jaffna, which I reckon is a very encouraging sign. And the impact of the growing research culture was evident during the first breakout of Covid 19 earlier this year, where our staff and students were researching day and night for creating various products and inventions of our own to help the fight against Corona. So, it is heartening to note that in this year's conference, there are many research papers reaching the conference secretariat, which involve the student community of our nine faculties.

Therefore, we are proud that we have created a platform for emerging researchers and scientists for showcasing their research outcomes at KDU research conference. And it is our fervent belief that inculcating and fostering the research culture and enhancing the quality and quantity of research in various disciplines in the country can raise the resilience levels of society and the nation as a whole.

This year's conference has attracted six hundred and fifty plus paper submissions, which I believe is a very clear indication of the right enthusiasm growing in the country towards research, particularly in development and security domains. So we are proud as a university to be able to stand up resolutely to fulfill the needs of the nation, especially at a time when such efforts are very much needed. I believe the efforts of security-based education aiming at strengthening national development should be more cooperative in the future and KDU has always facilitated any research efforts that strengthens the national security of our nation. We urge the academic community of Sri Lanka to join hands with us in all our future endeavours to support the nation especially through productive research in diverse disciplines.

The organizers of the KDU international research conference intend to set the tone to initiate more collaborative research at national and global levels. This research conference is an ideal platform to make connections. I hope that authors of KDU and various other local and international universities will take the opportunity to interact and develop friendly relationships, establish networks and to explore win-win situations.

I wish all the very best for the presenters and hope you will enjoy every moment of this academic fusion taking place on two whole days.

Finally, let me once again welcome our chief guest and the keynote speaker on behalf of all KDU staff. I wish that presenters and participants would have all the courage to continue their pursuits with determination to link up with the international community and work towards national growth and development through their research.

Thank you.

Chief Guest's Speech

Prof. GL Peiris

Honourable Minister of Education, Government of Sri Lanka

Major General Milinda Peiris, Vice Chancellor of the Sir John Kotelawala Defence University of Sri Lanka, Admiral Professor Jayanath Colombage, Secretary to the Ministry of Foreign Affairs, Professor Kapila Perera, Secretary to the Ministry of Education, Deputy Vice Chancellors, Deans of Faculties, Heads of Department, members of the staff and students of this university, friends well wishers, ladies and gentlemen. I am delighted to be present with you on this occasion for the 13th International Research Conference. I am no stranger to these surroundings. I have been consistently associated with your work during the progress of your university until you have reached the stature that we all are proud of at this time. There is no doubt that with the nine fully-fledged faculties that you already have and your plans further to expand this university particularly bearing in mind the priorities of this country at this moment. I am particularly happy about your plans for the establishment of a Faculty of Criminal Justice. I think that is certainly an area that is worthy of focus and attention. So you have always assessed, evaluated very accurately the needs and priorities of our country in the field of Higher Education. And you have been very quick to respond to those needs. That innovative approach is much to be admired. And these are among the reasons why I have particular pleasure in joining you in these deliberations. There is one another matter that I would like to mention. It is this that you are having this conference for the 13th consecutive time. It is our experience in this country that many good things are planned and inaugurated. It is much more difficult to follow through. So the fact that you have been able to do this without interruptions for 13 years adding to your

expertise as you go along improving and expanding towards what you are attempting. It is greatly to be admired the sense of perseverance and determination that is greatly required in this country at this moment and your performance is an inspiring example of what we all need to carry the country forward to even greater heights.

Now the theme that you have chosen for this 13th International Conference is extremely appropriate from many points of view. You have heard representation from many countries as Major General Milinda Peiris, Vice Chancellor explained a moment ago. You are holding this conference in exceedingly challenging circumstances. Again, you have been to adapt to difficult circumstances. You are resorting to modern technology to include and involve foreign participants in these deliberations even though they are unable to present with us physically on this occasion. The topic that you have chosen is the holistic approach to national growth and security. I think that is extremely relevant to present day needs in Sri Lanka today.

The first point I would like to make is that there is an intimate connection between national growth and security. It is fanciful to talk of any kind of national growth without the assurance of security. Security is a necessary and indispensable foundation. Without security it is impossible to achieve growth in any sector of the economy. The celebrated Political Scientist the late Professor Harold Laski of the London School of Economics said that the basic duty of a state is to provide security for its people. That is the ultimate reason for the existence of the nation state. The theory of the Social

Contract which has been developed by writers like Lock and Rousseau emphasizes the fact that the public have given the authority to state principally for the reason to create conditions in which life can go on in an orderly and frank manner so that the citizens of that state can realize their fullest potential as human beings, develop themselves and develop the community in which they live. In order to do this the essential condition is security. Without it nothing at all can be accomplished. Now we have seen empirical evidence of this in the recent past of our country through the 30-year conflict with the Liberation Tigers of Tamil Eelam. It was impossible to attract substantial investment into this country. Every facet of Sri Lanka's economy suffered grievously during that period. How can you attract investors into a country which has been thrown asunder by a ferocious war? Investment, international trade all this was affected by the ongoing conflict. I would also like to make a reference to the concept of reconciliation which became very relevant and important after the end of the war in 2009. There was then naturally the feeling that we have to leave the pain and anguish of the war behind us. We have to emphasize unity and the solidarity and bring together all the people of our cherished land irrespective of caste, creed, ethnic or religious identity to emphasize the oneness of the nation. That was the pith and substance of the concept of reconciliation. But it all went wrong during the *Yahapalana* administration of 2015 to 2019. And it is worth examining in an objective spirit the reasons why that endeavour failed so miserably. I think the basic reason is that the authorities at that time forgot the sentiments, the feelings and aspirations of the majority community. Reconciliation of course bases emphasis on minority aspirations to make them comfortable, to convey to them in definite terms the impression, the conviction that they are very much part of the country. They

belong, the sense of belonging so that confidence should be imparted to minorities, and at the same time, it is absolutely necessary to carry the majority community with you. If you lead them behind if you engender in the lines of the majority community that they are not important, they can be sidelined, they do not matter, such an exercise in reconciliation is doomed to failure as empirical experience in those 4 years convincingly demonstrated. What happened during that period? I think the most alarming spectacle that we are seeing in this country today is evidence that is transpiring in daily basis before the Presidential Commission that is going into the catastrophic phenomenon of the Easter Sunday Attack. Evidence has been given by one witness after another, the Inspector General of Police, the Secretary to President, the Secretary of Defence, all these people. Their evidence emphasizes the total breakdown of this security apparatus in the country. It is not mere debilitation or weakening of security apparatus it was total collapse of it. There was no security apparatus functioning in this country at all in any realistic sense. So it led to the loss of 265 valuable lives of this country and crippling of many other citizens of our land. Why did this happen?

When the present President, His Excellency Gotabaya Rajapaksa was Secretary to the Ministry of Defense, there was a very close collaboration between the intelligence arm and immigration. Whenever an application was made by a foreign preacher somebody who wants to come and teach in this country, when visa was requested a very thorough background check was done. As Admiral Professor Jayanath Colombage would bear witness the antecedent of the person applying for the visa was thoroughly examined. And if there was anything unsavory in the past of that person, if he has been involved in any activity which led to

disharmony among communities, then the immigration authority in close consultation with the intelligence arm would turn down such a request for visa in this country. That whole apparatus was consciously and deliberately dismantled. It did not happen unwittingly or inadvertently. It was deliberate government policy. So intelligence personnel were made to feel that they were in embarrassment. The less that heard from them, the less they were seen the better. That was the environment which prevailed at that time.

Surely, if you are talking of national growth and security, the first thing to ensure is that funds that are coming from abroad had to be brought into the country through proper channels. We have in this country such an established conduit. The conduit is the External Resources Department of the Central Bank of Sri Lanka. Of course, resources are welcome. But they must come through the External Resources Department. We must know the source, the origin of these funds and where are these funds coming from? We must know the purpose for which these resources are going to be applied, who is going to manage these resources? There must be an auditor account. All of these were dispensed. You had a situation where a university was built. What is the purpose for a university to come up in Kattankudy. The facilities, the buildings that are constructed, they are better than the buildings that you have here at the Kotelawala Defence University. They are superior to the quality of the infrastructure in the universities of Colombo and Peradeniya. If you go to Kattankudy blindfolded if the blindfold is taken off when you get there, you will feel that you were in the Middle East. The Palmyra trees, the architecture the overall environment. The sums of money involved are colossal. There is no exposure, visibility or accountability. It is that brought about a situation that culminated in the total collapse

of this security establishment. Madrasas can be all over the country. There are no Sunday Schools. They are providing many of them on daily basis. Nobody examines the curricula. There is no regulatory mechanism at all. So, the seeds of racial hatred are sown by those institutions. Of course, there must be freedom with regard to imparting instruction. But clearly there must be some supervision, some control, some regulation. That was totally lacking. So the country then paid the supreme price for the neglect of security in pursuit of narrow and partient and political objectives to placate aggressive minorities, not law abiding members of minority communities, but people who were intent on the destruction of the very social fabric of the country. So that was our sad experience.

This is true not only within the country, but also in the conduct of our foreign relations. What happened there? Sri Lanka is unique among the nations of this world in committing to a resolution in 2015 in the UN Human Rights Council. Sri Lanka became a co-sponsor of a resolution in condemning its own armed forces accusing its armed forces of the gravest crimes under international law and under the international humanitarian law because the preamble to resolution 13/1 of the 1st of September 2015 acknowledged with appreciation the report of the High Commissioner for Human Rights. And the High Commissioner's report makes the most damaging allegations against the armed forces of this country. And the government of Sri Lanka endorsed all of them and called for a thorough investigation at the international level. The resolution gave responsibility to the Human Rights Council and to the Commissioner for Human Rights to keep Sri Lanka under constant review. So here was a government which consciously, voluntarily, deliberately submitted the country to adjudication and assessment in respect of its armed forces to international tribunals

where justice considered the inanity of what happened. There were pledges given. In resolution 13/1 and 34/1 which are clearly contrary to the highest law of this country, the constitution of Sri Lanka operating para 6 of the first resolution 13/1 recommended that foreign judges of Commonwealth and other foreign judges should be entrusted with the task of judging our armed forces and of course, members of the civilian population. This is not possible under Sri Lanka's constitution because foreigners cannot exercise judicial power in respect of our citizens. And then the High Commissioner for Human Rights, Prince Hussein publicly conceded that in respect no other country has a Human Rights Council based in Geneva adopted so intrusive approach – so intrusive, interfering directly with domestic policy in that country. To what extent did this go? The resolutions involved matters which are clearly within the domain of the Sri Lanka's parliament not the business of foreigners. It called for constitutional reform. It called for devolution of greater powers to provincial councils. It called for thorough overhaul of Sri Lanka's armed forces and the police. It called for the repeal of the prevention of terrorism Act and its replacement by alternative legislation. Members of the Sri Lankan armed forces and the Sri Lankan police force were to be subjected to special criteria when they applied to join UN Peacekeeping forces abroad and even to enroll for programmes of training. So this is the extent to which national dignity and pride was compromised in order to placate foreign interests whose aims and objectives were incompatible with the well-being of this nation.

So this attitude which destroyed the very foundations of our national security manifested itself both in respect to domestic policy and the conduct of country's foreign relations during that period 2015 to 2019. In such a situation you cannot possibly have

national growth. You cannot have economic advancement because security has broken down entirely.

Just one another point I want to make before I conclude, and that is the reference to militarization in the current political discourse. Non-governmental organizations and elements of the opposition as well as some prejudiced and biased foreign commentators are finding fault with the role of the military in the conduct of national affairs in Sri Lanka at this time. But no objective observer of the Sri Lankan scene can doubt the fact. When it came to the control of COVID-19, this country could not possibly have achieved what it did without the vigorous involvement and cooperation of the armed forces, particularly the intelligence arm. We were able to control the pandemic because the armed forces were able to identify those who have been infected, first the immediate circle and then the outer periphery. That is still being done, yesterday today it is being done. And the role of the armed forces is indispensable. Without them the situation would be far worse than it is. Why is there this kind of hostile attitude towards armed forces? I think people who subscribe to that point of view failed to distinguish between the culture of east and west in this regard. Cultural attitudes, assumptions and values are in critical significance in this area. The attitude in this country, the attitude of the public, of ordinary people, to the armed forces is not what prevails in some western countries. The armed forces are not looked upon with fear. They are not regarded as instruments of oppression. On the contrary, after the war ended in 2009, it is in effect the armed forces, they got involved very intimately, very vigorously in uplifting the social conditions in the people affected in areas. They built houses. They made water available. They played a role in restoration of agriculture. And I know personally because I have seen in

my own eyes that armed forces of this country even helped in the constructions of latrines, of toilets in that part of the country. These are not regular functions of the armed forces. But because of the culture of our country the social morals the value system based upon empathy and compassion which is the hallmark of Sri Lanka's culture. That was the nature of the role that was performed by the Sri Lankan military. It is this fundamental fact that is not taken into account. In critiques of the present scene who find fault with the armed forces forget their involvement in national activity on broader scale.

So these are some of the remarks that I would like to make to you on this occasion. I am very happy that you are having this 13th International Research Conference. I am very happy that you have chosen a topic that is extremely appropriate. You have chosen a more relevant topic for this time. As the Minister of Education also with the responsibility for higher education in this country, I am very proud of the achievements of your institution, what you have been able to accomplish within so brief a time span. The needs of higher education in this country are very urgent when more people are clamouring for access to higher education, in our ministry, with the active system of Professor Kapila Perera who is rendering a yeoman service in that regard, we are trying to bridge the gap between education and employment opportunity. We are talking to the major Chambers of Commerce they provide the jobs in the private sector to ascertain from them the employment opportunities that will be available in their institutions during next three or four years, what are the skills which we are looking for? Because they are telling me it is not that we

do not have jobs to offer. We have jobs. But when we interview people we find that they don't have the skills which we want in our institutions. So we don't want to enhance a reservoir of angry and frustrated young people. We want to ensure that there is a correlation between the education that is imparted in our institutions and the skills for which there is an identifiable demand in the market place. So these are some of the adventures that we have embarked upon. We are also looking critically at our curricula which are obsolete and anachronistic. They have not been revisited for a very long period. There must be in line with the needs of our society methods of teaching. There is far too much emphasis on rote learning in memory that students have required to commit their notes to memory, retain in the memory and reproduce it at the examination that is antithetic of the education. Education comes from Latin words 'educate' which is draw out not to force in vast volume of actual material into mind of the students. So purpose of the education is to develop the analytical and the critical faculty of the student to encourage him or her to think for himself or herself and apply that volume of knowledge to face the challenges of life. So in the midst of all of this, in confronting the formidable challenges, I am very confident that your institution, Sir John Kotelawala Defence University will render an invaluable service. So I congratulate to you on your achievements of the past and I wish you well for the future. I know that you will continue to do your country proud. And I thank you sincerely for the honour that you have bestowed upon me by inviting me as the Chief Guest for these deliberations.

Thank you

Keynote Speech

Prof. Kapila Perera

Secretary, Ministry of Education, Government of Sri Lanka

Ayubowan! Wanakkam! Assalamu Alaikum! The Vice Chancellor of General Sir John Kotelawala Defence University, Major General Milinda Peiris, the Chief Guest today my honorable Minister, Ministry of Education, honorable Professor G.L. Peiris, Deputy Vice Chancellors, Deans of the Faculties, Heads of the departments, the Secretary to the Ministry of Foreign Affairs, Professor Admiral Jayanath Colombage, all the foreign participants who are joining this 13th International Research Conference at KDU, all the presenters, moderators, session chairs and all the distinguished invitees. Thank you very much for inviting me to deliver the Keynote Speech under the theme 'Holistic Approach to National Growth and Security.' I am indeed honored and privileged to be here having witnessed the very first one 13 years ago, and it happened to be General Milinda Peiris who was the Vice Chancellor then as Major General and we witnessed the presence of the Chief Guest as the Ministry of Higher Education, Ministry of Research and Technology.

I would like to start with this quote from the Chief Guest, "We do not want to have a reservoir of angry discontented people." I was one who had gone through in 1971, of course not in the country in 1988 -1989 and then in then 1983 as a university student, and many times during my academic career where there were disruptions to education, holding back the desire to fulfill or acquire knowledge with my colleagues, peers and the rest of the people due to the lack of security. I know how I felt then as a student. I think I was in grade 4 in 1971, and then in 1983 in my second year at this very same premises, the education of ours were disrupted. And

the feeling of those delays due to the lack of security, and the Chief Guest elaborated in deep sense of comprehension how security is important for the national growth. If I look at what is this traditional approach that is often based on defensive security policies as we had during my time at different ages. We had always defensive security policies. However, the persistence of strong security measures generates insecure feelings. I hope you agree with me. If there are strong security measures that generate insecure feeling as it reveals the presence of threats. So these are some of the things that people quote. Then again the democracy, well-being and freedom are some of the elements that we feel that we reduce this feeling of insecurity by reducing both threats and activities that we feel. Even if you take a house if you feel this insecurity due to lack of security this might not allow you to think, generate analytical skills. You are always worried about the security. How to provide security to your children and for yourself? And then it hinders and it slows down entire process of nurturing, acquiring knowledge. And then that it is halting the growth. so you start from the small households or individuals then if you take as a whole family, a village, a township and then provinces as a country, it basically retards the national growth. So, therefore, we need to have this thinking of holistic approach to national growth and as you and I understand there are necessary and essential conditions when we learn mathematics for certain things. The Chief Guest emphasized repeatedly the essential elements and in our academic mathematics there are sufficient and necessary conditions or essential conditions for forming mathematical theories there are certain

things. Likewise, it is essential to have security for national growth.

When it comes to economics, always and even for decades, the GDP strongly criticizes the measure of development. Still the role of economic systems neglecting the goal of global capabilities and expansion holds this economic growth or national growth. But the concession of development based on the glorification of individual success and the pushed capital accumulation hardly allows reducing insecurity and increasing freedom. So security becomes an individual good and relies upon ineffective defensive policies that we have practiced in the past unlike in the present. So development, well-being, security and freedom are strictly interrelated. Individual capabilities imply collective capabilities. Even in free market economies often human needs such as food, housing, employment, health care, family policies, fresh water, security and safety can be put in a market under regulation or collective governance, and those things even the Chief Guest highlighted. The need for water, need for food, how the security-- food security and water security ensure the getting this national security when you combine all these types of security the national growth under war conditions. So these goods are often under political debate as they are critical for development and social cohesion. The more they are shared among the large part of the population the less we experience social conflict and political instability. Security hardly is achievable individually. It is the result of more holistic thinking. Individual security and freedom implies the security and freedom of all. As I mentioned before these are interrelated. And if you look at or if you study research and in future research all these studies can help in understanding human capabilities and pathways towards collective security and enhance development. So instances of participation in

definition of security needs would make citizens able to feel at the center of development goals. So therefore, unlike in the past where we did not think holistically and the interrelations between the security and the national growth. Then we will fail. Even the theories in the literature highlights this one.

As far as Sri Lanka is concerned the contemporary security concerns that we face as an Indian Ocean country are broader and more complex, that need not be elaborated, than any state in our history. This will continue to exist. We can't say that this will stop today, tomorrow, next year or in ten years' time because the geopolitics and the race for the arms business and economic development, all these things will continue to grow, sometimes exponentially. So therefore, national security cannot be neglected and cannot be just let it go as the Chief Guest mentioned, even in a fraction of a second, it is very important. Otherwise there won't be any growth. As the Secretary to the Education, in the present context the role played by ensuring a secure environment for the student to go and sit the examination. They are not in a position to concentrate on answering the questions if the place is not secure. So if we are not able to hold the exams and continue to postpone, then we cannot achieve and we cannot predict national growth. So in this context the role played by the national security is to be commended as the Ministry of Education. I know personally the quick response to ensure secure examination centers for all of us for the future of Sri Lanka. Under these conditions even the identification of COVID origin in the recent past, you have to have peace of mind to concentrate on everything. That is basically if you only think of one place, one center out of 2,646 examination centers, then there will be lack of security in different centers. So therefore, you have to think holistically. Only the one aspect of securing

one place will not enable for us to continue this one and therefore the results will come in future in terms of national growth. So the range that concerns arise from threats to system that allows society to control intergroup and interpersonal conflict to more recently reorganized concerns associated with threats to social and economic systems. Once these events start to influence the policy and the economy of a country with a national resilience, that country will perish. One way of addressing this emerging situation is by promoting more and more research and development.

KDU, boasting with diverse nine faculties and through two new faculties to come, the Faculty of Criminal Law and the Faculty of Technology, is going to expand and provide opportunities and platforms for you to think, ponder in a military environment and inviting day-scholars giving the signal that is very important for you to mix each other understand the role of the military or security for the civilians, 22 million people in this country, how important the national security and the training in a military set up to achieve the common goal of national growth. So the KDU is at the forefront of researching the development and security related problems holistically. A holistic approach is needed to understand contemporary complex situations and circumstances. University education could inculcate co-values of security and development such as human dignity, integrity, democratic participation, sustainable development, economic equity, mutual understanding and respect and equality of opportunity. The three flags that are behind bring all three forces together, thanks to the KDA then, and how important this mutual understanding in the war was understood and it helped to coordinate things in a better manner. You trained officer cadets together and they understand the security roles in the air, at sea, on land. I am

sure that it could have been the catalyst then. Now you bring the third aspect the day-scholars. So this is holistic thinking. Like I started at the beginning it was not there then. We had three academies that did not know each other, but how had it come during the time when the national security was at risk. So ultimately the beneficiary is national growth. The honorable Minister, the Chief Guest mentioned how difficult it was for Sri Lanka to attract foreign direct investments. As I think Minister of Enterprise Development, Foreign Minister, Foreign Secretary. If you don't have security and thrust, nobody would come. But when you train together military and civilians with hand and hand, it would provide an ideal platform. The importance of civil-military relations and how KDU is instrumental in developing the above mentioned areas is to be commended. By promoting civil-military relations through education, a country could raise the resilience levels, like I mentioned, of communities. Honorable Minister spoke at length and elaborated that you have to have a strong commitment and the political will to ensure the security of this country. If these elements, instruments fail, the first thing that is going to effect is the education of the future generations. Even for me, the Oxford graduate, Rhodes scholar, I am a pupil. And this has provided opportunities and the responsibility to the government to ensure the security. So all spheres of activity will simultaneously grow ultimately culminating in national growth.

These are the few thoughts that I have to share with you. I would like to extend my gratitude on behalf of the Ministry of Education for having me and inviting me to deliver the Keynote address and set the platform for the next two day deliberations. And I wish all the success in the deliberations and creating more networks and have future directions for years to come in this context of national security that you have chosen today.

Whatever that you are going to do, base national security at the forefront. So divided we lose together we win. And I wish all the very best and thank you very much for all the participants and the people who have submitted papers, presenters, moderators,

and session chairs. You are plying a very important role in this context of national security and the national growth.

Thank you very much!

Vote of Thanks

Dr. L Pradeep Kalansooriya

*Conference Chair, 13th International Research Conference,
General Sir John Kotelawala Defence University*

It is with deep appreciation and gratitude that I present this vote of thanks on behalf of the organizing committee of the 13th International Research Conference of the General Sir John Kotelawala Defence University.

First of all, I convey my heartiest thanks to Professor G.L. Peiris the Minister of Education, a distinguished academic who spared his valuable time with us on this occasion. Sir, your gracious presence amidst busy schedules is truly an encouragement and it certainly added the glamour and value to this important event.

Professor Kapila Perera, the Secretary to the ministry of Education, also a distinguishable academic and a senior military officer is a proud product from our own institute. Sir, I greatly appreciate your willingness without any hesitation to be our Keynote speaker today.

I would also like to take this opportunity to extend my appreciation and gratitude to the Vice Chancellor, Maj. General Milinda Peiris for all his guidance and assistance provided throughout the event and this event wouldn't have been a reality and a great success without your courageous leadership under the current challenging situation today.

I would be falling my duties if I don't mention the exceptional support and assistance provided by the two Deputy Vice Chancellors who were there behind the team guiding us through a difficult time. I also would like to thank the Deans of all the faculties who shared the responsibilities and guided their staff amidst their very busy schedules.

This year's conference has attracted six hundred and fifty plus paper submissions, which is a very clear indication of the right enthusiasm growing in the country towards research, particularly in development and security domains. I take this opportunity to thank all authors share their studies on National Growth and Security in our conference. I also greatly appreciate our panel of reviewers on the valuable time spent to review this large number of papers. I'm sure that your valuable resnses would tremendeously supports to authors on enhancing their research studies.

Ladies and Gentlemen, as you witnessed, this was a new experience in the new normal, after the present pandemic, and therefore it was huge challenge to organize, coordinate and conduct research conference of this magnitude on virtual platform enabling a wider participation of both local and foreign participants. I thank all our participants attending the conference online despite numerous difficulties encountered due to the present situation.

Further, it is with great pleasure that I acknowledge the tremendous support and assistance provided by academic staff of all the faculties with all the Heads of Departments going beyond their regular duties to make this event a success. Similarly, I take this opportunity to appreciate the contribution of the administrative and non-academic staff whose commitment was essentially required in achieving the overall success.

Our sponsors, the financial support given by our Platinum Sponsors, People's Bank and

Bank of Ceylon and Co-sponsor, Abans Private Limited is highly appreciated.

Last but not least the officer cadets and day scholars who formed a very virtual component of the organizing teams in every sphere and I believe that it was a great learning experience and exposure which would help them tremendously in similar undertakings in the future.

Finally, I have no doubt that all of those attending the two days seminar will make the best use of the opportunity to enhance their

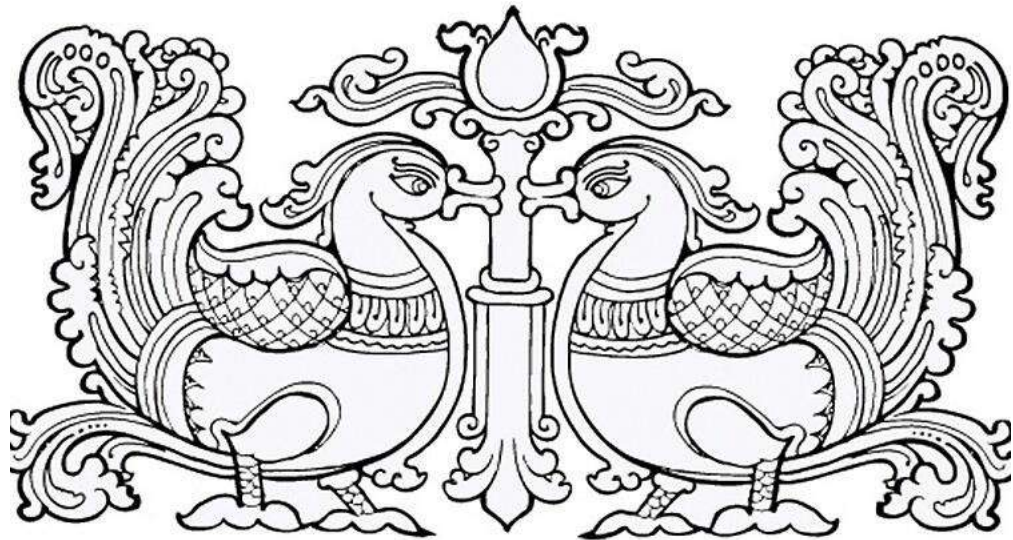
horizons and establish new bonds and networking while sharing their own knowledge and experience in a friendly learning environment.

In conclusion, let me take this opportunity to profusely thank my co secretaries, who stood alongside me throughout extending unexplainable support and assistance with exceptional commitment.

Thank you so much. I wish you good luck and all the best.



Technical Sessions



Two Unusual Cases of Complete Suicidal Hanging

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Abstract— Hanging is mostly considered as suicidal. Literature pertaining to forensic medicine is very rich for various methods of unequivocal and atypical suicidal hanging. This abstract describes such two cases. Presence of a noose around the neck with a knot is the rule rather than the exception in a case of suicidal hanging. A 45 year old male had managed to self-suspend from a ceiling fan by using a broad string of cloth. Without much support the dead body had perfectly been completely hanging for few hours before the dead body was recovered. One of the “classical signs” of asphyxial type of death is the presence of petechial haemorrhages though petechiae are not commonly seen in cases of complete hanging. The other case is regarding a 22-year-old married lady committing of suicide after narrating her story in a suicidal letter. It is very uncommon to see copious petechial haemorrhages in palpebral conjunctivae and bulbar conjunctivae along with scleral ecchymosis. When a forensic pathologist sees petechiae and ecchymosis in a case of hanging shrewd medico-legal investigation is justified to exclude a possible case of homicide. Contrary to the belief that the incidence of having petechial haemorrhages and congestion of face is more in partial hanging, rarely there are cases of undoubted complete hanging with florid petechial haemorrhages. An inexperienced pathologist may be misled and get confused with such rare findings resulting in unnecessary lengthy investigations even up to the extent of arresting of an innocent.

Keywords— *suicidal complete hanging, petechial haemorrhages in asphyxial deaths, knot and noose*

Introduction

Hanging is the commonest method of suicide in the hospital where the author serves as per the personal experience. But the literature says self-poisoning is as the commonest method when it is considered island wide (2020). Deaths due to hanging at times creates many problematic situations in the hands of forensic pathologists. Examination of the scene is mandatory in a certain percentage of deaths due to suspected hanging. The reason is the mark that is seen around the neck is the only thing that can be noticed in most of the undoubted suicidal hanging. In such cases no internal injuries to soft tissues or to the underlying bones or cartilaginous are observed. The so called asphyxial features are also not evident in almost all suicidal hanging cases when it is in “complete” in type. The author believes that hanging is a kind of death where bizarre patterns are noticed. The following two cases provide the atypical findings in suicidal hanging.

Case Reports

A 45 year-old married male had self-suspended from a ceiling fan while his mother had been to the next-door. His wife had gone abroad to serve as a domestic servant as the victim was a heavy alcoholic. The wife was requested to come home repeatedly by the husband though she was insensitive to it. When mother returned home after few hours she had noticed that her son was hanging from the ceiling fan but with very unusual manner. Without much support the dead body had perfectly been completely hanging for few hours. There had not been a knot or a noose to keep him hanging though a broader loop of wide cloth had been used

instead to get the desired action done. There were no classical features of asphyxia but there was a faint ligature mark intermittently at the upper neck. No other suspicious circumstances were there to suspect any criminal act. The cause of death was concluded as hanging and the manner of death as a suicide.

book indicating that the husband was threatening and made frightened her resulting in severe depression. She had been assaulted with fist blows over the past few weeks as well. The scene was visited. The dead body had been taken for the hospital by the time of visiting the scene. It was a case of complete hanging according to the measurements and with the scene observations. It was a case of self-hanging with bruises on her body and full blown classical asphyxial features. The author was made think equivocally along with congested face (Singh 2011). The neck only contained a broad ligature mark as a parchment lesion on her upper to mid-neck. Her face was fully congested with bilateral petechial haemorrhages on the copious petechial haemorrhages in palpebral conjunctivae and bulbar conjunctivae along with scleral echymosis. Blood was tested for common poisons and it was unremarkable. No other fatal injuries were noted. The cause of death was concluded as hanging and the circumstances as suicidal.

Discussion

It was amazing to see in the literature about atypical hanging cases where the deceased were using apparently insufficient methods to commit suicide. Very similarly the case one under discussion is also the same. It was just a broad cloth loop and it had been sufficient to keep hanging the body for few hours.

Typical asphyxial features are secondary to venous obstruction of the vessels of the head. When the pressure that is enough to compress venous system but not the arterial system the typical asphyxial features are overwhelming.

In the case two, the young recently married girl had self-suspended from a rafter by using one of her sarees. She had had an ongoing arguments with the husband for premarital relationship and the husband was accusing of her for many indecent acts. The depressed wife had written her story on an exercise

The pressure needed for venous obstruction is around 2 kg and to constrict the arterial system it is calculated as 10-35 kg. So the pressure applied to her neck most probably could have been more than two kilograms and less than 10-35 kg. But with the total weight applying on to the noose, is it possible to be the pressure applied such low? The time period needed to cause petechial haemorrhages were said to be very minimal (Živković V, 2018). However, forensic literature had revealed such cases. The reasons were mentioned as the duration of suspension, weight of the body (BMI), the position of the noose, type of the noose etc and the contributing variables are believed yet to be studied ((Živković V, 2018), (Clément R). However, it had been indicated the fact that presence of full blown asphyxial features in a case of undoubted complete hanging is to be further studied. There are very limited literature to prove the fact that the petechial haemorrhages are commoner to see in partial hanging but not in complete hanging (Sundal JA, 2020). Since there were lot of healing contusions in different stages of healing and the other conflicts in the family it could have been a case of homicide as in antemortem hanging. However, with the complete musculoskeletal dissection it revealed that no such injuries and was concluded as a case of atypical complete hanging. The manner was concluded as suicidal.

Conclusion

Deaths due to hanging are one of commonest cases where a forensic pathologist has to engage with. However, there are many atypical features

in postmortems and the way that victims had attempted hanging even in suicidal hanging cases. So further researches are required to understand the pathophysiology of hanging as it may be helpful to unravel many mechanisms along with the updated knowledge of the field.

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Author Biography



Recent researches had not been performed regarding the mechanisms of asphyxia and such aspects are encouraged as explained in this paper.

Perpetrators and Victims of Torture: Case Reports and Literature Review

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Abstract— Perpetrators of torture (torturers) are forgotten victims. Psychological and physical pain is inflicted deliberately by torturers to control victims or to fulfill certain requirements such as confession. The norm within the criminal justice system is to punish the perpetrators rather than being rehabilitated. According to the UN conventions, impunity is not validated. The author had examined many cases of torture on the hands of police though none of the alleged perpetrators of torture had been medico-legally examined. Similar to victims, it is said that multitude of problems are experienced by the perpetrators as well mainly in the forms of psychological and social aspects. Truly speaking perpetrators should also need to be understood psychologically. There may be numerous reasons why one would become a torturer. However, for a healthy society it is necessary to have healthy people not only physically but also mentally too. The author wishes to discuss the cases that were examined after being tortured and to emphasize more about the perpetrators with the available limited literature. The stake holders, policy makers and legislature should pay attention in perpetrators in order to uplift the society to a better place as a whole.

Keywords— Torturers, Judicial Medical Officer, mentality of the perpetrators of torturer, alternative interrogative mechanisms

Introduction

The literature on the short and long term sequelae of victims of torture is overwhelming. A

person is made helpless, cannot escape and is unable to fight back and surrendered with inhumanity during torture. If one justifies torture, it is highly unjustifiable act because torture includes extreme inhuman acts. Torture is justified as a means of extracting information (Mayerfeld, J., 2020). However, there are enough reasons to prove that torture as an ineffective interrogative tool. It may lead to false confessions. It violates rights and it dehumanizes a victim. The author had examined many patients following torture as a part of routine duties. But the author's intuition goes towards another striking aspect as well. It is true that a victim should be the prime concern within the context of treatments. On the other hand what about the perpetrator? He had essentially violated the law and had been inhuman to a fellow human being. But a society is consists of both individuals namely the victim and the perpetrator. Torture is heinous and it is worthwhile to consider the mentality of perpetrators of such actions (Alkan, 2020). The due punishment is one essential aspect. The rehabilitation of the perpetrators' mind is essential as it would leave repercussions of horror in their minds as well.

Case Reports

The following few cases (torturing by police) with inhuman acts made the author to think deeply about the mentality of perpetrators:

The victim was burnt with hot objects (with a heated iron and with a heated metal stick) leaving many injuries over his body. Extensive areas of contusions were also present. Chili powder had dusted on his face, anus and over genitalia. The patient was admitted to hospital and treated for

The victim was hung from his wrists after tying the upper limb onto his back (strappado/ corda) along with blunt force trauma. The patient presented with unilateral dislocated shoulder and numbness of that side. He had ended up with easy dysplasia of the shoulder.



Figure 1. The handcuff marks seen on the left wrist.

Repeated beating onto his bilateral soles (falanga) resulting in swelling and the patient had ended up with a chronic pain on walking and even during the rest.



Figure2. the swollen right heel.

Bilateral hands were beaten and underside of the nails were (hands) pricked with a pin.



Figure 3. Swollen hands with the nail injuries.

An electrical shock had been introduced on the chest and back including all four limbs. It was reported to be very painful together with a tingling sensation. On examination, no marks were revealed.

Discussion

Except for the case 5, all the other cases were related to some kind of theft and the police needed confessions. The fifth case was said to be for seeking revenge. One of the police officers had an extramarital affair with this patient's wife and since he was against on that the police wanted to teach him a lesson to keep him silent. The brutality inflicted as torture on the victims of above was frightening and even difficult to be listened. A literature review was performed on published articles regarding the fate of the perpetrators as to why they have become perpetrators and what are the short and long term effects of them for being torturers (Sanders, 2002). The underlying causes that promotes one to become a perpetrator are many. Some perpetrators believe that they do the right thing, due to official encouragement, being sadistic in a few recognized causes. Only few articles were available related to the perpetrators of torture and those articles had shown that the gravity of the problem and it may at times equal or more than the effect of victims (Costanzo and Gerrity, 2009). Torturers are not received adequate

support to cope their lives and they have been forgotten by the authorities. Two types of torturers had been recognized: the first group is more comfortable with their acts and they think that detainees are inhuman and they deserve to be tortured. The second type don't want to become torturers but they are patriotic and loyal. The torturers themselves get PTSD with their inhuman actions. Not only that they experience guilt immensely but also they may become alcoholics or get addicted to substances to forget the past. Experiencing nightmares, committing suicide, development of mental illnesses, inability to maintain long term relationships are certain other recognized ill effects (Ebner, 2008), (Psychology of torture, n.d.).

Conclusion

One may have a false belief that torturers only harm the victim. But it is not true and the perpetrator also at a great risk of harming himself both socially and mentally in many ways. Since the perpetrator also experiences the simultaneous risks and damages through inhuman acts, perpetrators should not be neglected during the medical management since the society encompasses both the victims and the perpetrators. The author believes that it is mandatory to include the sequelae of perpetrators in the syllabi of armed forces and in the police as it would definitely helpful to realize the short and long term effects of being perpetrators. Advanced technology and other soft skills are needed to be utilized to extract information from suspects rather than using of inhuman torture methods.

Author Biography



The author believes that the emphasis on the perpetrators of torture is not adequate in the Sri Lankan setup and through this extended abstract, she hopes to create a dialogue among the relevant stakeholders.

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Healing Through Martial Arts: Reconstruction of Bodymind in Actor Training

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Abstract: The bodymind work is a vulnerable subject with relevance to actor training methodologies. Especially, if the body is perceived as an actor's main instrument, which is a common viewpoint in major actor training practices. Although the importance of a sound state of bodymind for acting is emphasized, studies of the bodymind treatment and recovery are rarely incorporated in actor training. This research attempts to find ways to preserve actors' physical and mental wellbeing in order to prevent collapses of their instrument – the body. Tadashi Suzuki and Phillip Zarrilli have extensively discussed the bodymind equilibrium by incorporating strong corporeal art practices into actor training. In pursuing their leads, the solution to the research problem might be found in Martial Arts practices. Sri Lankan Martial Art Angampora was examined as a potential source of development of bodymind awareness and recovery practices in actor training. The data collection was done through observation and interviewing Agam Maduwa group since they are trained in old traditions of Angampora whereby bodymind awareness elements are preserved. At the current stage of ongoing research, it has been proven that Angampora philosophy incorporates sustainable means of bodymind wellbeing and recovery practices. In addition, it was observed that practicing Angampora benefits mental and physical stability which results in decreasing the level of stress and depression. Therefore, Angampora is an exemplary Martial Art form that could serve as a role model for incorporation of wellbeing philosophy and recovery methods into actor training in order to prevent physical and mental injuries for actors.

Key words: acting training methodologies, martial arts, healing practices, Angampora, bodymind

Introduction

Actor training methodologies aim to develop the actor's bodymind state. In other words, they prepare actor's instrument for performance. The term "body" as an actor's instrument is widely used in actor training practices since the body is considered the main mean of stage expression. "All performance work begins and ends in the body. When I talk of spirit or mind or feeling or psyche, I mean dimension of the body. The body is an organism of endless adaptability. A knee can think, a finger can laugh, a belly cry, a brain walk, a buttock listen" (Schechner cited in Zarrilli 2002: 14). Although the importance of a sound bodymind state for actors is evident, studies in treatment and recovery of bodymind are not broadly incorporated in actor training methodologies. Though most actor training methodologies target preparing the bodymind for the performance, post-performance bodymind rehabilitation is excluded in major actor training systems. This is the main cause of an actor's depression and professional procrastination. Acting could be physically and mentally harmful for actors. Neglecting bodymind healing and recovery aspects in actor training methodologies leads to destabilization of the actor's bodymind health which is not acceptable in professionalism in acting. "Performing has no relation to imitation, for the theatrical matter is the performer's struggle with his or her own physical and mental being" (Allain 1998: 79). To put in another way, if a violinist breaks his/her instrument it could be substituted with another violin. On the contrary,

when an actor breaks his/her instrument the replacement is not feasible. The question of this research is how to preserve actors' physical and mental wellbeing in order to prevent their instruments' collapse. Surprisingly, an answer to this question might be found through exploration and incorporation of elements and philosophy of martial arts to actor training systems.

Methodology

The research started with analysing literary texts, both in print media and on the internet, in order to understand the main principle in bodymind recovery practices and the need of its incorporation to actor training methodologies. After gathering data from literary texts, the research moved to the next phase of information collection which was directly linked to the Accelerating Higher Education Expansion and Development (AHEAD) project. Traditional martial arts training (Angampora) was examined as one of potential sources of development of bodymind awareness and recovery practices into actor training methodologies. Specially, the research investigated the practices of Angampora Traditional Sri Lanka Martial Art group led by Grand Guru Kakabushana G. Karunapala. The particular group was chosen for the research purposes as they are trained in old traditions of Angampora training which means that all bodymind awareness elements are preserved. Also, Guru Karunapala is considered as the only Angampora master in Sri Lanka whose Angampora style comes from the Alexander era. This phase of the research was carried out through practical training with an Angampora group by visiting their training session on a weekly basis. Thus, data were gathered through experiential practice, observations, semi-structured interviews and documentation of traditional Angampora martial arts training. In addition, Angampora training sessions were documented through visual means, which were selected and analyzed in order to project

Angampora recovery and bodymind wellbeing means to actor training methodologies.

Background and Literature Review

In the foregoing, it was argued that existing actor training systems have not adequately addressed the bodymind healing practices. Nevertheless, the presence of some therapeutic practices can already be observed in actor training methodologies. For example, the basic body scan exercise, which is the same exercise that is common in psychotherapy sessions, is widely used during actor trainings. Such an exercise has a beneficial effect on the mental and physical state of the actor. In psychotherapy the benefits of the exercise are described as "by scanning through the whole body, the client becomes aware of the areas that experience pain or discomfort - usually parts where energy blockage or constriction occurs. Clients are also asked to attend to areas of comfort and wellness for a while in order to gain access to the innate energy of self healing" (Leung, Chan, Lee 2009: 4). The same can be said about the breathing techniques and breath meditation which are present in both acting and psychotherapy practices. However, the problem in actor training is that such therapeutic and healing methods are usually introduced as techniques, and not as a part of acting philosophy. These exercises do not aim consciously to focus on wellbeing, and as a result there is no intentionality. "Broadly defined, intentionality involves the projection of awareness, with purpose and efficacy" (Schiltz 1995: 120). As a result, these therapeutic and healing practices in actor training methodologies are not conscious ones and do not provide a proper effect, and they also neglect their major beneficial outcome. The elements of healing implementations are perceived by actors as technical exercises and the healing aspect of such practices is blurred. That is to say, that a conscious and intentional approach to such exercises could elevate bodymind wellbeing and the recovery awareness in acting practices.

If we look at Asian actor training practices, bodymind awareness is stronger in these than in Western practices. Furthermore, Philipp Zarilli's statement shows us that bodymind treatment and its proper evaluation and understanding are presented in Asian actor training methodologies.

"To understand acting in India, one would need to understand vibratory theories of sound which provide insight into the psychophysical aspects of voicing and its metaphysical implication; yoga physiology/philosophy which provide a detailed understanding of what happens to both physical and "subtle" bodies when practicing exercise; and Ayurveda (literally, the "science of life"), the indigenous system of medicine which provides a humoral understanding of the body, physiology, and health." (Zarilli 2002: 85)

This shows us that Asian theatre and other corporeal art practices could serve as potential source of uplifting bodymind awareness in actor training methodologies. Bodymind consciousness is present in Asian arts philosophies, which is crucial for the valuation, appreciation and treatment of the body. Japanese theatre director Tadashi Suzuki uses physically challenging exercises and martial art elements within his acting system in order to promote the importance of body wellbeing. This can be seen in the example of one of his training exercises which is called lifting the heavy ladder. "Lifting the ladder teaches mental concentration. And the actors know it is dangerous and that they must prepare themselves to it. It teaches them value and protect their bodies" (Brandon 1978:40). Extreme physical exercises help to stress on the vitality of bodymind wellbeing. Therefore, martial arts could be presented as the source that introduces elements of bodymind awareness to actor training methodology.

Further, it has been proven that actor training methodology neglects the cool down part of the training which is an essential element for maintaining actors' physical and mental wellbeing. Mark Seton presented a research

based on Australian Actor's Wellbeing Survey which shows the following. "Actors approach warming up with rigour and focus, carefully managing the movement into role, preparing their bodies and voices, and taking time to focus their energies, either to relax or to raise their levels of activation. In contrast, the process of moving out of performance is characterized by a diversity of predominantly informal processes, in which the transition is rarely dealt with as a book-ending cool-down counterpoint to warming-up but more frequently as an extended process of winding down"(Seton 2019:15). It might be said that such pattern of actor behavior can be observed globally and causes harm for actor's sound state. Another aspect that Seton's research brought up is that actors prefer to use alcohol drinking as the way of transition from performance to ordinary life routine. His research it showed that 52% of Australian actors would use such method to cool-down (Seton 2019: 10). "Our data suggests that one such strategy is to have a drink, as innocuous, as that formulation sounds, however, our overall findings confirm that this comes at a significant cost to an actor's overall wellbeing" (Seton 2019:16). With this in mind, the cause of actors using alcoholic drinks as a transition cure is the absence of cool down session in actor training. Dr Seton has called on actor training institutions to impose changes to actor training regarding actor's wellbeing since consequences of such mis-care could be drastic in the future. "Work practices of warming up exist, but training institutions and theatres must do more to support actors to cool-down to help them reground into everyday life and relationships". As can be seen, the problem of actor's wellbeing and neglect of cool-down has been raised in the performance field, though practical solutions have not been introduced as yet.

One of the reasons, of such dilemma is that most of the actor training institutions use actor training methodologies developed at the end of 20th century and beginning of the 21st which

were tailored to the needs of actors living in that period. Indeed, a rhythm and style of modern actor has changed compared to the past. A modern actor copes with more stress in relation to professional and personal life and as the result the actor training methodologies should consider such factors and tailor actor training accordingly. Prof Maxwell says that actors are highly skilled, low paid workers, who experience anxiety, stress, and, most seriously, depression at high levels. Also, research shows that actors are more vulnerable and exposed to depression. "Researchers from the University of Sydney surveyed 782 working actors and found they had significantly higher levels of depression, anxiety and stress than the general population, coupled with dangerous level of substance use". Indeed, pressure and stress levels that a modern actor faces directly affect their mental and physical wellbeing which results in weak professional skills and performance. As a result, there is an urgent need to introduce new elements to actor training which will cover actor's mental and physical wellbeing aspects. Sri Lankan traditional martial art Angampora in particular is investigated as one of such potential models. The direct translation of Angampora means "fighting with the body". Thus, knowledge of the body, its functions and its recovery are the core of this martial art. Another vital element that can be borrowed from Angampora is its healing practices which are based on the ancient medical science Ayurveda. For this reason, Angampora could be a possible source of bodymind awareness and recovery development in actor training methodologies

Angampora and Bodymind Wellbeing

To demonstrate the relevance and potential use of Angampora practice in actor training methodology regarding wellbeing and recovery aspects, it is essential to be familiar with main principles and philosophy of this martial art. Angampora is an independent and strong martial art form which alongside carries the knowledge of bodymind wellbeing and its

treatment through ancient practices and spiritual connections. When describing Angampora, its practitioners usually refer to it as a game. Grand Guru Kakabushana G. Karunapala describe this sport as not a playful game or a game for pity. Angampora originates in Sri Lanka which is a Buddhist country. For this reason, as described by one of the Guru's student "*Angampora is meant ideally for the Sinhala Buddhist person to protect and preserve the temples, the dagabas, the buried, hidden treasures of this country. It is to protect country, the religion and the nationality. However now it is reducing. Now lots of people are coming in search of truth.*" As can be seen this combative art form is strongly attached to the Buddhist religion and its philosophy. It is important to remember that the main thing in Buddhist culture is to learn to meditate. Angampora promotes a sense of patience as a key element in achieving strong and sound mental and physical wellbeing. Guru says that "*the main thing is the patience for the person. Remember well, the one who has patience can take onto their body a strength they didn't have earlier. I say that. You need to have a right amount of patience. Through patience you will automatically feel like maybe you should eat this, or that, and you get that, you will be able to learn more*". Clearly, meditation practice is a part of Angampora and is present as a basis of its philosophy and training. The reason for practicing meditation is to bring the mind into one place which leads to peace of mind and increases a level of concentration. Guru Karunapala explains meditation as following "*the main thing in meditation is bringing your mind to one place. That is the main thing. If your mind is everywhere, you cannot learn anything, nor can you do anything. When we say meditation, we sit on the ground, and meditate for at least 8-10 minutes. We think, may I remember the things that I learnt here, may I not forget, I think of all my teachers when I meditate. When we do this, we receive a protection, and also, we very rarely forget what we learn when we meditate. I think most of these students here a have very good memory, they forget very little of what we learnt and students here I do not think*

that students here have any memory loss.” Indeed, meditation puts mind in a stronger place and makes it more resilient. Also, it is believed that people who practice Angampora tend to be calmer and are able to cope with their anger and negative emotions better. The main reason for this lies in its philosophical aspects and beliefs and the way the training sessions are conducted. According to Guru *“Some people get very angry. People who do this sport/exercise do not get much angry. The nerves at the soles of the feet are massaged by the stones on the ground, and it eases the mind. With this, the anger of the individual stops completely. That is the first thing. And the body, when it functions and is bruised, it starts functioning, and that person will never get angry.”* Thus, Angampora has ability to control anger in its practices. Lisa Firestone refers to Sigmund Freud and his explanation of depression as an anger turned inwards. With this in mind, an ability to control anger might prevent or decrease a level of depression which can serve as a solution for actor’s tendency to depression.

Another key point about Angampora philosophy basis is a connectivity between human being and the Universe. People who practice such form of combative art believe that a human being has a connection to the Universe. Guru says that *“Someone who learns this sport they is able to develop strange feelings for the animals, trees, and the ground they have a connection with the environment. These feelings emerge automatically from engaging in this sport. It is from that the mind of that person gets the strength to draw the minds of other people as well. One more thing, we call it the “sestare” we do this with no footwear, and make a connection to the ground, the connectivity, earth mother. Overall, it’s a connection with the Earth and the space, and the foot connectivity, the universal power. From this, we develop a connection with everything. We learn about animal posture. We learn about medicinal purposes, Ayurveda medicine, pressure points, a pressure point treatment.”* It can be said that Angampora is based on holistic approach and linkage to the environment. At the same time, it has elements

of performance as they act as other means of nature which comes naturally through its practice. Also, connection with the space is vital in Angampora practices. In fact, these aspects closely resonate with main actor training principles.

It must be remembered that treatment and curing is a crucial part of Angampora training. The knowledge of traditional ancient medical treatment is passed from master to his students. If any injury occurs Angampora fighters do not require to go to a doctor since all injuries and diseases can be cured in their training base. The methods that are usually used in such treatments originate from Helavedakama which is Sri Lankan indigenous medicine. Following Guru provided examples in which scenarios curing methods are used. *“Depending on the nature of the accident, the treatment differs. Let us say someone received an electric shock. We have to lay the person on their back, there are some nerves that we have to massage, and then when we do that and raise the person up, they recover consciousness. Say someone is poisoned, we have medicines where we can make to the person vomit or make the poison ineffective. For example, if your hand is damaged there are different types of oils that can be used. And there are many people who have been cured through these medicines. We do advise them, and guru advises them on things that they should protect themselves from, types of foods to avoid, and how to protect oneself from further injury. We have medicine for everything. And also, there have been no bad incidents here up to this day. Also, when you enter the Angam Maduwa, your chance of getting injured is also low. There is a spiritual power here.”* In addition, the strong connection to the space and belief in its sacred meaning helps to omit any injuries during the training session.

Furthermore, Angampora martial art form has a very close connection to the human body. The attention is brought to every part of a human body and teaches about it weak and strong points. In Angampora, the attacks can be deadly as the result they paralyze or kill opponent.

Guru Karunapala says that *“an Angampora artist is able to dislocate our joints. This is what we have learnt through experience. For example, master is able to break a bone into three. He can break a foot into 3. If he hits a certain point, it will explode. We say that the knee has 4 eyes, 4 nerves.”* The literal translation of the word “Angampora” is “fighting with the body” hence anatomy and body structure knowledge is vital. *“Also, there is a good understanding of your bone structure and joints in the body for the student who is learning Angampora. How to identify weak points, how to treat them if anything bad happens to them, is taught in Angampora. This martial arts form provides exercises and food habits that make joints stronger. And there are certain therapeutic massages and beating techniques that help build a body. Also, there are massaging techniques for nerves. Say for example you are seated in a chair and you get a stomachache and even a stomach pain could go by touching knee or the points in a knee.”* To summarize, wellbeing of mental and physical health lies in the philosophy of Angampora and is crucial in its practice. Such form of martial art helps to develop strong and sound bodymind system as well as to prosper a connection with the environment. Also, it provides means of treatment and recovery methods which assist to maintain physical and mental health.

Angampora and Actor Training

As has been said earlier, the actor’s body serves as a main instrument of stage expressiveness. With this in mind, it is important to realize that human body is a complex structure which is vulnerable and resilient at the same time. As a result, the knowledge of its functions is crucial. However, when it comes to actor training methodologies, a knowledge of body and its function are barely introduced to its practices. On the other hand, when looking at Angampora martial art a knowledge of a body and human wellbeing is strongly present in its philosophy. Although, the Angampora is a dangerous and risky game it is shown that the tendency to injuries or self-harm is low. It is to say that even

when accidents occur practitioners of such combative art form possess knowledge of self-treatment. They are trained to maintain physical and mental wellbeing in order to prevent traumas. As was explained by Guru Karunapala, everything can be cured and healed through Angampora treatment methods. In general, people who practice Angampora say that this martial art helps to support their mental and physical health. Also, it increases their level of self-confidence and positively effects their daily and professional lives. Giving these points, knowledge of self-treatment and understanding of a body is crucial to acting profession as it provides an opportunity to eliminate physical and mental disorders that actors are facing during their acting careers. Like Angampora students, actor students should obtain solid and precise knowledge of body structure. They should study to identify weak body points and methods of its treatment in order to be able to run their instruments smoothly. Apart from that they should be further introduced to exercises, therapeutic messages and food habits which benefit in building strong body. As was mentioned earlier patience is a key element in the Angampora training and such skills benefits to learning and working outcomes. Patience is developed through meditation, physical activities and connectivity to the environment, especially through connection with a ground. Thus, Angampora can serve as a guide of incorporation of physical and mental recovery and treatment elements to actor training.

With attention to the post performance phase, it should be said that cool down element is absent in majority of actor training systems. As was discussed earlier it results in massive mental and physical issues in actor’s sound. On the contrast, cool down is a natural process in Angampora training. Although, there is no separate set of exercises for cool down, practice of cooling down is essential and has solid connection with a training space in Angampora sessions. Guru explains cool down process as following *“we do the exercises, we do not stay even two minutes in one place, we have a little bit of water. We just walk around the Angam*

Maduwa space and automatically the body cools down. It happens through bring your mind to one place. You do not let your mind run here and there and forget the things you just learnt. But there are also massage techniques. For example, after the exercises you go through the particular massaging techniques and you are at ease afterwards". Thus, through Angampora training you receive an ability to calm down your mind and to cool down your body with minimum expenditure of energy. In addition, particular massaging techniques help to renew body and eradicate tension. A fusion of such Angampora principles and methods of cool down practice into actor training will provide actors with ability to bring their mind and body to one place and smoothly transit to their daily life routines with minimum stress and tension. The understanding and practice of cooling down session might prevent stressful transition between off and on stage. At the same time, it prevents body and mind from injuries. Mark Seton pointed out that in sports cool-down plays an essential part of a training and its beneficial outcomes have been vivid. "It is worth remarking that professional sports have a long embraced systematic, and frequently lengthy cooling-down processes, as a core practice, often focused on reducing levels of physiological and psychological activation" (Seton 2019: 15). Therefore, the attitude to cooling down in actor training methodologies should be as comprehensive as it is in sport practices.

Reconstruction of actor training approach is urgently required in order to maintain mental and physical wellbeing of modern actor. At the present time actor training methodologies have not reached a level of covering all the essential aspects for actor's wellbeing and professional growth since acting philosophy and methods are comparatively young, and as a result require further refinement. As a matter of fact, an opportunity for rebuilding structure and philosophy of actor training might be achieved through incorporation of Angampora martial art form that has remained unchanged for over centuries due to its strong philosophy and well developed structure. It is believed that

Angampora has been created with things in the past and with things in the future. Angampora cannot be changed and probably it should not be as it seems a perfect form of martial art that consists of vital knowledge and skills. The refinement of actor training methodologies through Angampora could cover deficits in actor training and establish new actor training philosophy which promotes mental and physical wellbeing of actor's health.

Discussion

The study demonstrates a correlation between Sri Lankan Martial Art Angampora and actor training regarding philosophy of wellbeing and healing practices. In fact, actors have serious issues with mental and physical health, which is caused by disregard of recovery methods, body knowledge and cool down in actor training methodologies. It is correct to say that actor training evolved once Asian somatic and corporeal practices were introduced to it system. As a result, to enhance actor training systems as well as refer to the needs and struggles of modern actors, additional sources of Asian corporeal practices should be applied. For this reason, Sri Lankan Martial Art Angampora was chosen as one of the potential sources of actor training development. The aim of the research was to identify whether Angampora has substantial healing methods that could serve as a guide in order to maintain actor's Psychophysical system. It has been shown that Angampora philosophy and practice promotes physical and psychological stability as well as offers methods of bodymind recovery. Precise body knowledge, meditation, healing methods, massaging techniques, connection to the environment and space promote healthy bodymind system as well as make the body resistant to stress. These aspects and practices are intentional and consciously done in Angampora training and as a result they provide beneficial outcomes which cannot be said for acting training. Ultimately, practicing Angampora tend to decrease level of anger and make people calmer which results in reduction of chances to get depression and being

physically inactive. Indeed, it shows that well-structured training with emphasis on bodymind wellbeing positively affects on bodymind health and assists with efficient use of body resources. Notably, these elements and training philosophy are what actor training methodologies require in order to maintain the actor's instrument i.e. the body. Therefore, incorporation of Angampora philosophy to actor training could provide methods which will cover bodymind wellbeing aspects and will assist with healthy on and off stage transitions. Moreover, Angampora practice elements have a potential to make actor's psychophysical system stable to stress and injuries since through Angampora actors will obtain knowledge of bodymind recovery and its maintenance.

Conclusion

The subject of mental and physical health has been playing a significant role in society over the past couple of years. However, a trend of conscious bodymind wellbeing has not influenced modern actor training methodologies yet. Every day, actors use their bodies as a professional tool which causes massive harm to the actor's emotional and physical wellbeing. The actor's body can be compared with a process of pottering or sculpting, since an actor works with a body in the same way as sculptor or potter works with clay. Body and clay are very fragile substances which could be easily destroyed and the process of reconstruction of broken material should be meticulous and time lasting. For this reason, the subject and practices of mental and physical wellbeing and recovery should be presented at a new level in actor training methodologies. Indeed, the bodymind health awareness shift in actor training could be made through incorporation of martial arts practices and its healing philosophy. In contrast to actor training, Sri Lankan martial art form Angampora has a strong presence of bodymind recovery and injury prevention elements. Examination of Angampora showed that its training

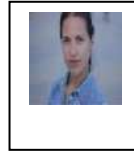
methodology has potentially beneficial sources that could be transferred and incorporated into actor training. Consequently, a next stage of the research will intend to find the way of practical use of Angampora elements in actor training in order to raise the state of bodymind awareness and prevent actor's physical and mental destruction.

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Iron and Vitamin C Content in Green Leafy Vegetables

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Abstract—Commonly available green leafy vegetables (GLV) are rich sources of minerals and vitamins. Nutrient analysis of green leafy vegetables contributes to determine the health benefits that can be achieved by consumption. The present study determined the iron and vitamin C (ascorbic acid) content in some locally available GLV (*Sesbania grandiflora* (kathurumurunga), *Alternanthera sessilis* (mukunuwenna), *Trianthema portulacastrum* (sarana), *Amaranthus viridis* (thampala (green)) and *Gymnema lactiferum* (kurinnan)).

Leaves for the study were obtained from a vendor in Kottawa, Sri Lanka. Moisture content of the cleaned, washed and dried leaves were determined using Association of Official Analytical Chemistry (AOAC) approved oven dry method. Ascorbic acid of fresh leaves sample was determined by AOAC standard 2,6-dichlorophenolindophenol titrimetric method. Iron content was determined in dried leaves using standard spectrophotometric method.

Moisture content of leaves ranged from 94-79 mg/100g on fresh weight basis with sarana and kathurumurunga having the highest and lowest moisture contents respectively. On wet weight iron content ranged from 6-25.2 mg/100g. Tampala had the highest iron content with lowest in sarana. Vitamin C ranged from 45.8 – 163.4 mg/100g on fresh weight basis with kathurumurunga having the highest and mukunuwenna having the lowest vitamin C contents.

Accordingly, an edible portion of 50 g of *Sesbania grandiflora* provides 64 mg of the RDA

requirement (75-90mg/day) of ascorbic acid and a 50 g of *Amaranthus viridis* provides 10.5 mg of RDA requirement (8-18mg/day) of iron. Thus incorporation of these leaves in the meal will provide essential micronutrients necessary for metabolic functions

Key words: green leafy vegetables, ascorbic acid, iron content

Introduction

Different varieties of green leafy vegetables, which are available in Sri Lanka are inexpensive and nutritious. Leafy vegetables provide low dietary energy making them valuable components in energy limiting diets (Nwanekezie and Obiakor, 2014) and at the same time they provide considerable amounts of vitamins (beta carotene, ascorbic acid, vitamin E, and vitamin K), fiber and minerals (calcium (Ca), magnesium (Mg), potassium (K), sodium (Na) and iron (Fe)) (Borah *et al.*, 2009). Consumption of at least 50g of green leafy vegetables is a necessity to satisfy the daily requirement of minerals and vitamins (Wikramanayake, 1996) and supplements the rice diet.

Methodology & Experimental Design

Collection and preparation of plant materials

Samples of green leafy vegetable were obtained from a vendor who supplies green leafy vegetables collected from a field situated at Kottawa in the western province. Foreign material and deteriorated plant parts were removed from the plants by hand sorting. Soil and

sand adhered to the plant material were washed off. Excessive washings were avoided to prevent leaching of nutrients. Oven dried samples were finely grounded and were stored at room temperature in tightly capped, labeled bottles.

B. Determination of moisture content in GLVs

Moisture content of plant material was determined using the (Association of Official Analytical Chemistry) AOAC (930.15) method. Edible parts of fresh plant samples were cut in to small pieces and 0.5000 g of fresh plant samples was added to oven dried crucibles (105 °C for 30 min). Samples and crucibles were dried repeatedly at 105 °C for 3 to 4 hours till a constant weight is gained. Crucibles were transferred to a desiccator each time after drying, cooled and weighed. Loss of weight on drying (LOD) was calculated.

C. Determination of vitamin C content in GLVs

Vitamin C concentration was determined on fresh samples by the 2, 6-dichlorophenolindophenol (DCPIP) titrimetric method (AOAC official method 967.21). The dye remains colourless till all ascorbic acid is oxidized. At the equivalence point addition of dye causes the solution to be rose pink.

Ascorbic acid in fresh samples of GLVs (10.0 g of each) were extracted in to 50 mL of metaphosphoric acid-acetic acid solution. The supernatant layer was decanted through a filter funnel and volume made to 100mL with distilled water. Metaphosphoric acid-acetic acid solution 5 mL and 2 mL of plant juice samples was pipette in to each of three 50 mL Erlenmeyer flasks. Each sample was titrated with DCPIP dye solution until a light but distinct pink colour produced and persisted above 5 seconds. The results were expressed as mg ascorbic acid/100 g wet weight (WW).

D. Determination of Iron content in GLVs

Iron in GLVs determined in dried plant samples using spectroscopy method. Iron (111) reacts with thiocyanate ions and forms a blood red complex $[\text{Fe}(\text{SCN})(\text{H}_2\text{O})_5]^{2+}$. Absorbance of this colored complex measured at 480 nm corresponds to ferric concentration.

Dried plant sample (3.000g) was ignited in a porcelain crucible at 550°C until residue is white. The residue was moistened with conc. HCl, evaporated to dryness and moistened with 5mL of conc. HCl and boiled for 2 minutes. Distilled water (50 mL) was added to the preparation and heated on a water bath for few minutes. The solution was filtered in to a 100 mL volumetric flask through few filter papers stacked together. Conc. H_2SO_4 [5 mL] was added and volume made up to 100mL with distilled water.

A series of ferric ammonium sulphate $[\text{Fe}(\text{NH}_4)\text{SO}_4]$ solution [1 mL, 2 mL, 3 mL, 4 mL and 5 mL] was prepared using standard ammonium sulphate solution. Unknown ferric solution (7 mL) was prepared from plant samples. The solutions were made up to 7 mL by adding distilled water, Nitric acid (4N HNO_3) and ammonium thiocyanate (2M NH_4CNS) 1 mL each. Optical density was measured at 480 nm wave length. Standard curve was plotted against known ferric ammonium sulphate $[\text{Fe}(\text{NH}_4)\text{SO}_4]$ concentrations and absorbance corresponding to unknown ferric concentration was found using the standard curve. All tests were replicated 6 times. Using the concentration mg of iron in 100mg of dried plant sample was calculated. Using the moisture value of each plant sample iron mg per 100g fresh weights was calculated.

E. Statistical analysis

The results obtained were presented as mean +/- standard deviation (SD). Student's t-test was used to determine the significant variations of the determined parameters. Probability value (P value) < 0.05 was considered as statistically significant.

Results

The moisture and iron content of studied GLV are stated in Table 1. According to the results in fresh samples; Iron content ranged from 6 to 25.2 mg/100g in GLVS. *Amaranthus viridis* had the highest (p < 0.05) iron content among the vegetables studied. *Sesbania grandiflora* and *Gymnema lactiferum* had similar iron contents and high iron content after *Amaranthus viridis*.

Significantly low (p < 0.05) iron content was found in *Trianthema portulacastrum* among the vegetables studied (Table 1).

Previous studies also have found high iron contents in *Amaranthus viridis* (20.7 mg/100g) (Borah *et al.*, 2009, Nadeeshani *et al.*, 2018) and *Gymnema lactiferum* (14.64 mg/100g) (Maheshika & Jagath, 2018) and *Sesbania grandiflora* (6.49 mg/100g) (Nadeeshanietal, 2018), *Alternanthera sessilis* (6.72 mg/100g) (Nadeeshanietal, 2018), to have low iron contents compared to *Amaranthus viridis*.

Table 1. Moisture, iron and vitamin C content in GLVs

Sample Type	Moisture content (g/100g)	Iron in mg/100g of fresh sample #	Vitamin c content in mg/100g of fresh sample #
Kathurumurunga (<i>Sesbania grandiflora</i>)	79 ±1.0	20.3±1.5 ^a	163.4±6.7 ^b
Mukunuwenna (<i>Alternanthera sessilis</i>)	86±1.4	14.6±1.2 ^b	45.8±8.8 ^c
Thampala (<i>Amaranthus viridis</i>)	84±3.5	25.2±0.8 ^c	122.5±13.0 ^a
Sarana (<i>Trianthema portulacastrum</i>)	95±6.5	6.0±0.3 ^d	65.0±16.5 ^d
Kurinnan (<i>Gymnema lactiferum</i>)	82±2.1	20.27±2.6 ^a	125.7±16.2 ^a

Results are average of 6 replicates; different superscripts in the same column indicate significantly different values for the same mineral at 95% confidence interval (p < 0.05).

Moisture content ranged from 79.15 to 94.64 mg/100g in the GLV in the study. Highest moisture content was noted in *Trianthema portulacastrum* and lowest was observed in *Sesbania grandiflora*. *Alternanthera sessilis*, *Amaranthus viridis* and *Gymnema lactiferum* had similar moisture contents (Table 1). Moisture content in GLV allows them to serve as reserve for trace elements and vitamin C.

According to the results the vitamin C ranged from 45.8 – 163.4 mg/100g in GLVs. Significantly high (p<0.05) vitamin C content was in *Sesbania grandiflora* leaves (Table 1). Significantly low vitamin C content was in *Alternanthera sessilis* leaves. *Amaranthus viridis* and *Gymnema lactiferum* had similar vitamin C levels, but values were significantly lower than *Sesbania grandiflora* leaves (Table 1). Previous studies also have found the highest vitamin C content in *Sesbania grandiflora* (169 mg/100g) (Duke, 1983), (134.75 mg/100g) (Umaramani & Sivakanesan, 2015). *Alternanthera sessilis* (36.17 mg/100mg) (Umaramani & Sivakanesan, 2015)

Sample Type	Vitamin C content in edible portion of GLVs (mg/50g)	Iron content in edible portion of GLVs (mg/50g)
Kathurumurunga (<i>Sesbania grandiflora</i>)	64.54	8.02
Mukunuwenna (<i>Alternanthera sessilis</i>)	6.278	6.28
Thampala (<i>Amaranthus viridis</i>)	51.45	10.58
Sarana (<i>Trianthema portulacastrum</i>)	30.875	2.85
Kurinnan (<i>Gymnema lactiferum</i>)	51.53	8.31

and *Trianthema portulacastrum* (22 mg/100mg) (Umaramani & Sivakanesan, 2015) leaves reported to have low vitamin C contents in previous studies as well.

Discussion and Conclusion

Amaranthus viridis had the highest iron content among the vegetables studied. Recommended dietary allowance (RDA) values of iron (age of 19-50) in both males and females respectively are 8 mg/day and 18 mg/day. The RDA requirement of iron and vitamin C provided by the GLVs in the study is shown in Table 2. A normal edible portion of 50 g of *Amaranthus viridis* (moisture content 84 %) provides 10.5 mg of RDA requirement of iron. *Sesbania grandiflora* and *Gymnema lactiferum* provide 8 and 8.3 mg of RDA requirement of iron. *Sesbania grandiflora* and *Gymnema lactiferum* are good sources of iron that can be used to satisfy iron requirement in vegetarians after *Amaranthus viridis*. *Trianthema portulacastrum* is the poorest source of iron compared to the other GLVs in the study.

Table 2: RDA value of iron and vitamin C provided by GLVs.

RDA value of ascorbic acid in males and females above age of 19 is 90 mg/day and 75 mg/day respectively. A portion of 50 g of *Sesbania grandiflora* (moisture content 79 %) provides 64 mg of the RDA requirement.

In conclusion, *Amaranthus viridis* can be considered as a good potential source of vitamin C as a portion of 50 g of fresh *Amaranthus viridis* provides 51.45 mg of RDA requirement of vitamin C. A portion of 50 g fresh *Sesbania grandiflora* provides 64 mg of RDA requirement of vitamin C and 8.02 mg of RDA requirement of iron and considered as a good source of both. Kurinnan is also good potential sources of vitamin C as it provide 51.53 mg of vitamin C from the RDA requirement and provides a 8.13 mg of RDA requirement of iron. *Amaranthus viridis* and *Gymnema lactiferum* provides similar RDA requirement of vitamin C. *Alternanthera sessilis* is a poor source of iron and vitamin C comparing to the other leaves in the study (figure 1).

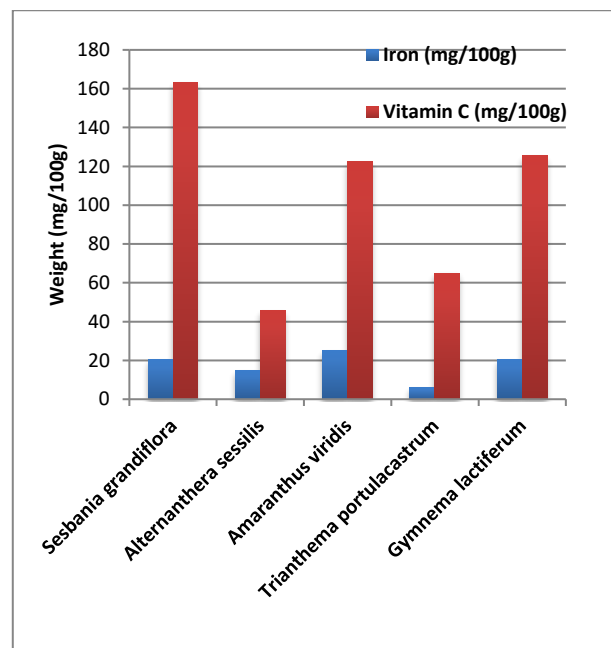


Figure 1. Iron and vitamin C content in GLVs

Source: KDU IRC 2020

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A review of KDU Support Centre

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Abstract: The aim of this study is to find the nature of problems and the demographic characteristics of the service seekers of KDU support centre which was established 2019. It will also look at the required future directions of KDU support centre. Mental health issues among the university students are becoming an alarming problem worldwide. Recent reports reveal that the situation is the same in the Sri Lankan student community. Foreign and local studies indicate that there are multiple contributing factors to these issues including academic, relationship, logistic (food and accommodation, adjustment etc). Kotelawala Defence University has its unique culture compared to any other university in the country being the only university which produce military professionals to the nation, enlisting student not only based on their Z score and conducting psychological assessment before students are selected. After reporting few suicidal incidences among the students and various behavioural issues among the KDU the department of psychiatry and administration decided to establish a support center in August 2019 with the aim of helping the KDU students and the staff with psychological counselling and psycho therapy. This paper summarises details of only the psychological issues reported to the KDU support center by 35 KDU students 10 staff members and their demographic and other related information without divulging their identity. Findings indicated that the most common psychological issue among students was depression. It was observed that most of the service seekers had several comorbidities. Further, relationship issues, adjustment issues and anxiety were prominent in this sample. It was observed that stigma towards mental illness is still playing a considerable role for not

seeking help for mental health issues. It is recommended to take necessary actions to minimize stigma within the university community. KDU helpline which was recently started will be main referral pathway for KDU Support centre in future.

Keywords— *KDU support center, psychological issues in University students, prevalence*

Introduction

Education is a “public good” and it provides benefits to the society as well as the individuals (Saxton, 2000). Education in current world has become more competitive, complicated than ever before. Hence, the mental health of university education is challenged by this competitive nature of education and other psycho-social issues faced by the student community as a cross section of the eroded society. Emerging researches indicate that there are diverse factors contributing to increase the prevalence of mental health issues among university communities around the globe. Researches also reveal that some of these factors play a precipitating factors role for those who are already vulnerable to mental health issues while other factors become perpetuating factors to maintain mental health issues in student. According to stress diathesis model, when individual perceive a high level of stress or pressure to perform which is beyond their comfort zone, that individual starts breaking down.

Prevalence of Mental Health Issues Among University Students

A study conducted by Peltzer & Pengpid (2015) on Depressive symptoms and social-demographic, stress and health risk behaviour among university students in 26 low, middle and high income countries including 2020 university student revealed a prevalence of 24.0% moderate and 12.8% severe depressive symptoms. They further found that demographic and social variables (being female gender, low organised religious activity, lack of social support, and lack of personal control), stressful or traumatic life events (sexual violence, physical child abuse) and health risk behaviour (tobacco use, insufficient brushing of teeth, irregular sleep duration, increased salt intake, infrequent meals a day, heavy internet use and having sustained an injury) were associated with severe depressive symptoms. College Report of Royal College Psychiatry (2011) revealed that 4% of university students in the UK seek counselling help at their respective universities. Some other studies in the UK have shown high rates of mental ill health when this is assessed by screening instruments such as the General Health Questionnaire (GHQ). MacCall et al (2001) found that 65% of female and 54% of male undergraduate students attending a student health service scored positive on the GHQ.

Ibrahim, Kelly, Adams & Glazebrook, (2013) conducted a systematic review using 24 international journal articles. They concluded that university students experience rates of depression that are substantially higher than those found in the general population. Foreign students are more vulnerable to develop psychological issues due to cultural, financial and other logistic issues (Sandu, 1995). Some local studies suggest that there are multiple contributing factors to these issues in Sri Lankan university students including academic, relationship, substance use, adjustment issues and logistic (Rasanjali, 2013; Sriyalatha, 2016).

Despite showing high prevalence of mental health issues such as depression, university students prefer to seek assistance for their depression from informal sources, such as their friends, rather than seeking professional assistance (Amarasuriya, et. al., 2013). This is a common issue even in general public. To address this issue universities should set up mental health services to help the student who need such services. The stigma towards mental health which can affect negatively on help seeking behaviour of the student (Amarasuriya, et.al 2013) Hence, such services should be able to face this challenge.

Sir John Kotelawala Defence University is a unique government higher education centre in Sri Lanka. It is the only university which provides professionals to the military service in the Nation both undergraduate and Post Graduate levels. It also cater to their military organizations in Asian and South Asian region. With recent reforms KDU enrolls private candidates as day scholars to meet the high demand for quality higher education in the government sector. Currently there are nearly 4000 student reading for their undergraduate level degrees in seven different faculties at KDU. Eventhough military cadets have different routine for their training purpose both day scholars and cadets follow same academic courses. Cadet's comparison of daily routine and other disciplinary limitations with the day scholars' routine is inevitable. This may lead to extra stress in cadet officers.

Role of University Setting In Student Mental Health

Psycho-social environment in higher education institutions is unique and play a significant role in students' mental health. This is most probably only time in a person's life in which education, leisure, accommodation, social life, medical care, counselling and social support are all provided in a single environment. This

facilitates opportunities to develop and evaluate new interventions for the prevention and treatment of mental disorders that may be difficult to achieve elsewhere. The university is seen not only as a place of education but also as a resource for promoting health and well-being in students, staff and the wider community. Hence, most of the higher education institutions both government and private sector now eager to set up their own psychological counselling centres in addition to career counselling service usually done with the support and guidance of the psychiatric and or psychology department of the university. This has become a vital part of student wellbeing.

Kdu Support Centre

Inresponse to few completed suicidal incidents and few attempts reported among the KDU students and also increased number of students reported to UHKDU Psychiatric clinic, KDU medical faculty established a support centre in August 2019 which was free for both military and civil students and staff. A confidential room at KDU Medical Centre was allocated for this and a clinical psychologist occupied this room on every Tuesday and Friday. Awareness on this service was created among students and staff via KDU website, powerpoint slide played on every class room and notices put on departmental notice boards. This awareness welcomed all the students both cadets and day scholars and military and civil staff at any level. Records were kept confidentially under the clinical psychologist. If the clinical psychologist decides that the client needs psychiatric intervention they were referred to the psychiatric clinic at the UHKDU. This report summarises the number of students reported to KDU support centre, their demographic details and nature of the problems. This will be an initial baseline data for future research to understand the mental health issues among KDU student.

Outcomes

There were 35 KDU students including both cadets and day scholars who sought help from this center from August 2019 to March 2020.

Demographic data revealed that all of them were between the age of 20-25 years. Approximately 60% of them were representing urban and sub urban areas and had attended to popular schools. At least 80% were fluent in English and had done their school education also in English. Majority (78%) of them were children of government workers (Military services, teachers, other government workers. Others were from business and private sector families. Hence all the students represent lower and upper middle class.

When look at their psychological issues presented depression was the commonest issue among this unique group of people. There were 11 (36.6%) who presented with depressive symptoms some of them had other issues such as relationship issues and academic. Nine students (30%) sought help for relationship issues and 3 of them had other commodities such as depression and anxiety. Seven students sought advices for their academic issues which 5 of them had adjustment problems. Adjustment was a common issue for cadets due to the restricted routine and physical training. There were two students sought help for anxiety, phobia and stress related problems. However, it was observed that some of the service seekers with depression and adjustment issues also presented with personality traits such as Obsessive Compulsive Personality Disorder traits, dependency and borderline personality traits.

VI. IMPLICATION OF THE KDU SUPPORT CENTRE AND CURRENT DATA

According to the data obtained so far depression is the commonest psychological issue among the university community and this finding confirms

the findings in the other countries too (Peltzer & Pengpid, 2015). Significance of differences of psychological issues among different demographic aspects were not calculated due to the limited data at hand at this level. This would be possible in future with the increase of the service seekers. Some of the demographic aspects such as age education background were homogenous in this group.

KDU support centre was a timely intervention by KDU to support students and staff to ensure their psychological wellbeing. However, it was observed that still there is a hesitant to seek help among the KDU community. Cadets perceive their schedule extremely tight and whenever they make a move they need to inform it to training staff. This may impact on the help seeking behaviour of the students. Another factor contributing to prevent help seeking behaviour is the stigma toward mental health. Despite of the mechanisms employed to ensure the confidentiality, still students and staff are reluctant to see a mental health professional due to fear of stigmatisation. University needs to take extra steps to remove these barriers.

The Way Forward

KDU just established 7 24 helpline since 1st of July with five qualified volunteers. This will enable student and staff to discuss their issues over the phone and then get an appointment at KDU centre or psychiatric clinic at UHKDU. Helpline will help to reduce the stigma issue as students don't have to walk in to Support centre. After developing the rapport with the counsellor they can make an appointment for one to one session. Not only the clinical psychologists any volunteer counsellor can use the support centre as a meeting point with the students. As a part of this project it is expected to train a pool of academic counsellors so that students can discuss their academic or other issues with them before problems become complicated. As academic counsellors have frequent contacts with the students they also

can observe changes in behaviour of the student such as deterioration of performance, interaction with friends etc. Academic counsellors will be trained in several screening methods so that they can identify who needs further psychological and or psychiatric help. They would refer those students either to the KDU support centre or to the psychiatric clinic directly. However, referral pathway is not rigid allowing students to contact the psychologist should they feel so.

KDU support centre also expect to do a general mental health survey with all the students to get an idea about the prevalence of issues, their social-economic and other demographic information related to mental health issues. It is also possible to correlate these finding with the scores of the psychological assessment which conducted at the enlistment stage. These data can be used as baseline data for longitudinal study on KDU. Findings of this study also will be able to inform the higher decision making authorities to make informed decision about student wellbeing and do periodic changes to curriculum.

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Cervical Spine Injury of Sri Lankan Origin

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Abstract— According to the World Health Organization, 250,000 – 500,000 people suffer from spinal cord injuries around the world every year, of which up to 90% are traumatic and preventable. Here we discuss a unique case scenario occurred during traditional Sinhala and Tamil New Year festival. It is a common practice to organize ‘new year games’ during this season of which climbing of ‘sliding tree’ is a popular game. However there has been a recent trend to replace this with a different event, where a flag is hung at a high level and a group of people have to make a pyramid where the person at the top has to grab the flag. Our patient, a 55 year old farmer, after consumption of substantial amount of alcohol, was forming the base of the pyramid with a group of his friends. On their shoulders, they were bearing the weight of their friends forming two more stories up. Suddenly one person on the top lost his balance and fell on the head of this patient. Our patient was fallen on the ground and could not get up or move his limbs. He was taken to the local hospital on a three wheeler from where he was transferred to the National Hospital of Sri Lanka. He was quadriplegic with weak diaphragmatic breathing, and computed tomography revealed grade III spondylolysthesis of fourth cervical vertebra over the fifth. With clinical and radiological features of complete cord transection, he succumbed to death within hours of admission. Making human pyramids by ordinary people without a formal training can be extremely dangerous, especially when they are under the influence of alcohol. We strongly suggest that such games should be banned and not allowed among ordinary people.

Keywords— Cervical spine injury, Sri Lanka

Introduction

Spinal cord injury (SCI) is one of the commonest causes for trauma related major morbidity and mortality in the young age group. The resultant deficits may lead to major physical disabilities, psychological agony and ultimately a shorter life span of the victim. It causes a huge burden to the family as well as to the health care system in addition to the indirect costs such as loss of productivity.

Incidence of the SCIs varies significantly among different countries and different cultures. Also poor reporting and inadequate data from developing countries precludes drawing firm conclusions. According to the World Health Organization (2013), 250,000 – 500,000 people suffer from SCIs around the world every year with an estimated annual global incidence of 40 to 80 cases per million population, but this figure includes degenerative and malignant injuries as well.

According to BB Lee and RA Cripps et al (2013), it was estimated that globally in 2007, there would have been between 133,000 and 226,000 new cases of traumatic SCIs from accidents and violence with an estimated incidence of 23, excluding degenerative and malignant aetiologies.

Interestingly, incidence of spinal cord injuries remains constant over past few decades, though the pattern of SCIs is evolving. SCIs due to low falls in the elderly (above the age 65) are increasing in developed countries with ageing

populations and seem to affect more females than males. However in developing countries still young males between 18–32 years are primarily affected due to major trauma. Out of all SCIs, about 90% are traumatic although the proportion of degenerative and neoplastic SCIs has been increasing. At least partly, this may be in par with the increasing life expectancy. Overall reported mean age of traumatic SCIs is 33 years and male to female ratio is 3.8:1.

Not only the incidence, but also the aetiology of SCI is highly variable among different communities. As mentioned above, SCIs due to low falls are increasing in the elderly in developed countries while those due to road traffic accidents seem to have reached a plateau, or even a down slope. Comparatively, SCIs due to road traffic accidents are increasing in developing countries; working population in these countries also suffer SCIs due to low falls while carrying heavy loads on the head, due to high falls from roofs and trees, and due to careless diving into shallow water. Warfare and civil riots are well known aetiologies for SCIs, but in Sri Lanka, even during the war season at its peak, falls from heights and road traffic accidents were more common than warfare injuries among the survivors of SCIs. Also crush injuries due to falling heavy objects on the head is not uncommon in our clinical set up. The case we discuss here also a unique case scenario occurred during traditional Sinhala and Tamil New Year festival.

II. CASE

Our patient, a 55 year old farmer, was a previously healthy male living with his wife and three children. As a part of celebrating traditional Sinhala and Tamil New Year, he was enjoying the New Year games at the village ground with his family. After a while, he let the wife and his kids to be with their neighbours and joined a group of his friends to have some alcohol. It was a pleasurable experience to have so many friends together without any special commitment, and together with so many old stories, more and more bottles of alcohol were emptied.

All of them had consumed a substantial amount of alcohol, when the organizers announced for a new game. The organizers had replaced the traditional 'climbing of sliding tree', which is a popular event in 'new year games' with a different event, where a flag was hung at a high level and a group of people have to make a pyramid where the person at the top has to grab the flag.

Our patient was forming the base of the pyramid with a group of his friends. On their shoulders, they were bearing the weight of their friends forming two more stories up. Almost everyone was under the influence of alcohol, and their balance, perceptions and reflexes would not have been optimal.

Suddenly one person on the top lost his balance and fell on the head of this patient. He was fallen on the ground and could not get up or move his limbs.

Everyone got panic, his wife and kids started to yell, and his very same friends lifted him up to take him under a shade. He was taken to the local hospital on a three wheeler from where he was transferred to the Accident Service of the National Hospital of Sri Lanka.

On presentation, he was conscious and rational but was quadriplegic with weak diaphragmatic breathing. After initial resuscitation, he was taken for computed tomography which revealed grade III spondylolisthesis of fourth cervical vertebra over the fifth. With clinical and radiological features of complete cord transection, he continued to deteriorate and was succumbed to death within a few hours of admission.

Discussion

SCIs are notorious for their catastrophic outcome. One-third of patients with SCI are reported to be quadriplegic due to cervical spine injuries and 50% of patients with SCI suffer complete transection of the cord. Victims of SCI

have 2 to 5 times higher risk of premature death compared to people without SCI. Long term sequelae such as chronic pain, recurrent urinary tract infections, hypostatic pneumonia, contractures, decubitus ulcers, sexual difficulties, loss of earning capacity etc poses a great psychological distress and a heavy burden on family as well as the health care system.

Irrespective of the recent advances in Medicine and technology, still only very little can be done for primary cord injury other than preventing secondary injury and optimising the environment for remaining neurones to recover. However up to 90% of SCIs are traumatic and preventable, and indeed this is the best form of management. In the case of our patient, injury would have been easily avoided: firstly by not organising such a risky game where untrained ordinary people have to make a human pyramid- a task to be done safely only after intense training for a significant period. Secondly, they should have been prevented from attending such a game when they are under the influence of alcohol.

Even the way he was transferred was grossly unacceptable. According to the World Health Organization, "Mortality risk increases with injury level and severity and is strongly influenced by availability of timely, quality medical care. Transfer method to hospital after injury and time to hospital admission are important factors". Although we are proud of our high standard free health care system, still quite a percentage of general public lack the knowledge about handling a patient with SCI. Moreover, most of the lay people tend to be very emotional, so ones their family member or friend sustain a major injury, they act emotionally rather than making decisions and acting with sense.

It has been calculated that 3% - 25% of spinal cord injuries occur after the initial traumatic insult, either during transit or early in the course of management. This highlights the importance of pre-hospital care and education of the public. Unless the spine is immobilized

and protected appropriately, secondary cord injury may worsen the already existing deficit. In fact NICE guidelines recommend letting the patient adjust a comfortable position himself or herself at the site rather than mobilizing him without adequate resources.

Furthermore, up to 28% of spinal column injuries involve multiple non-continuous vertebral levels. One may be distracted by more obvious or more symptomatic injury, which may be masking a very much unstable injury at another level. Taking these two salient points into account, the way this patient transferred was grossly unacceptable. Although he was unable to move any of his limbs soon after injury indicating severe primary damage, the mode of unsafe transfer would have further aggravated the cord injury.

Timely and patient tailored prompt treatment improves the outcome, but a percentage of high cervical spine injuries will be non-salvageable. As in this case, weak diaphragmatic breathing indicates paralysis of intercostal muscles. Reciprocal movements of the paralysed chest wall will further compromise the efficiency of diaphragmatic movements, so in the absence of functioning intercostal muscles, respiratory capacity will be only 30% of the normal. In addition to intercostals, as in our patient, injury at C₄-C₅ level will impair the activity of phrenic nerves, which originate from C₃-C₅ cervical roots.

According to Hilal Abboud et al, initial presentation with complete quadriplegia was associated with 76-fold increased risk of poor outcome, whereas Frankel Grade A and neurovegetative disorders were associated with 114-fold and 32.5-fold increased risk of poor outcome respectively. Patient in this case was densely quadriplegic, belonged to Frankel Grade A (No motor function, no sensory function below the level of lesion), and obviously a poor outcome is anticipated.

Correction of osteoligamentous structures, i.e. spinal fixation and decompression will provide an optimal environment for a potentially recoverable partial cord injury, otherwise, no

much treatment options are left to treat the SCI itself. Stem cell therapy is primarily at research level, though several studies have shown limited benefits while some are not. With the radiological evidence of complete cord transection, his neurological deficit will not be improved following decompression and fixation and will be ventilator dependent to maintain oxygenation. That is to say, even in the 21st century, best form of management of spinal cord injury is primary prevention.

Conclusion

Severe SCIs are catastrophic injuries with poor outcome, and primary prevention is the best form of management. In fact most of them are preventable by proper legislative measures and public awareness to avoid risky behaviours. As described in this case scenario, making human pyramids by ordinary people without a formal training can be extremely dangerous, especially when they are under the influence of alcohol. We strongly suggest that such games should be banned and not allowed among ordinary people.

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