

The detection of phosphorus in the tissue of bomb victims in Gaza

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Abstract

One of the authors went on a fact finding mission to Gaza immediately after the termination of the Israeli invasion. One of the allegations towards the invading Israeli army was the use of phosphorus bombs. The author was able to take samples of tissue from burn victims. Attempts were made to demonstrate the presence of phosphorus in the burn wounds. Using histology and Raman spectroscopy it was found with a high degree of probability that phosphorus was present, although it was not proven with absolute certainty.

Key words: phosphorus, burns, Gaza, Raman spectroscopy, human rights

An independent fact-finding mission into violations of human rights in the Gaza Strip was undertaken from December 27, 2008 until January 18, 2009.¹

Together, with the local pathology staff in Shifa Hospital, Gaza City, the team examined microscopic slides stained with Haematoxylin-Eosin from burn victims. The slides showed non-specific necrosis and inflammation and a few carbon particles indicating the effect of burns.

Inorganic phosphorus has the ability to penetrate deep into the tissue in the presence of oxygen. In some of the bomb craters brownish material was found that would smoke and catch fire when exposed to oxygen. The author, JLT, witnessed such a lump bursting into flames as soon as it was taken out of a can where it had been covered in milk powder.

JLT was handed 14 mounted, unstained slides with the information that the biopsies had been taken from burn wounds with a suspicion of phosphorus content. As it would be impossible to take the material out through the Northern Crossing at Erez, it was given to an acquaintance who took it out via the Rafah crossing in the south to London, from where it was sent to JLT.

As we had no knowledge of any method that may be used for the histology detection of phosphorus in tissue, we left some of the samples unstained and applied Raman Spectroscopy to the tissue. Raman spectroscopy has been used as a tool to examine diseases affecting both soft and mineralized tissue.^{2,3} Raman spectroscopy is applicable in the study of tissue samples both with and without biologically occurring phosphates. The study of inorganic phosphate minerals and their structure is also possible using Raman spectroscopy e.g. the study of turquoise by Frost et al.⁴ To the best of the authors'

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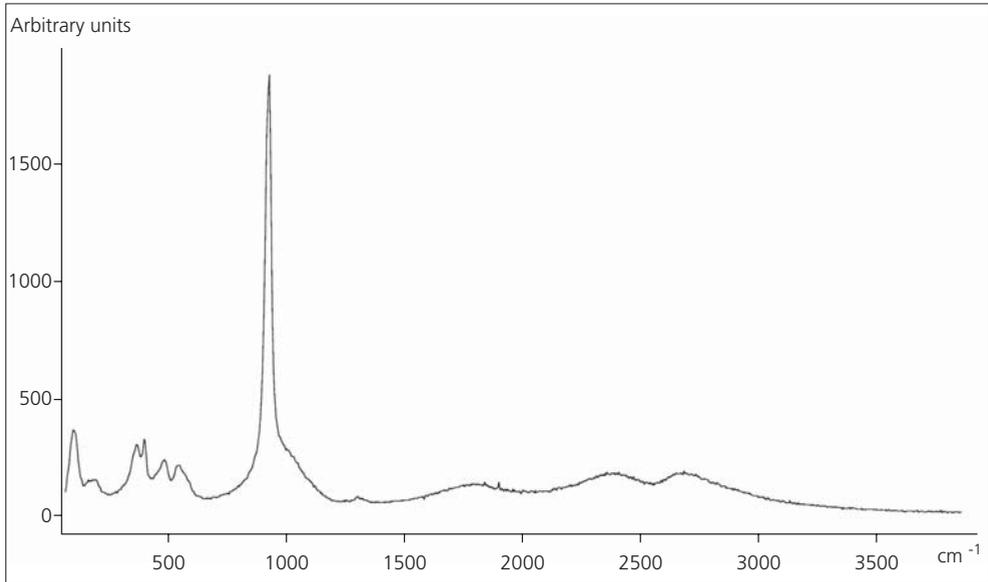


Figure 1.

knowledge, this is the first time Raman spectroscopy has been used to examine tissue for exogenous, inorganic phosphate.

Figure 1 shows the spectrum for a control particle of potassium phosphate. At the time we had no indication of the site of any phosphorus particles and applied the spectroscopy around the carbon particles. As expected the spectroscopy showed the presence of carbon.

After staining all the slides we discovered birefringent particles in some of the tissue. Figure 2 shows crystals of potassium phosphate and Figure 3 shows some of the birefringent particles in the tissue. There is an obvious similarity. However, when Raman spectroscopy was applied (Argon-ion-laser, blue line at 457.9 nm) we were unable to differentiate the birefringent particles from the background signals, so phosphorus could not be detected (Figure 4).



Figure 2.

Conclusion

We believe that the inconclusive results of Raman Spectroscopy in the detection of phosphorus were due to the processing and subsequent staining and mounting of the tissue, which might interfere with the

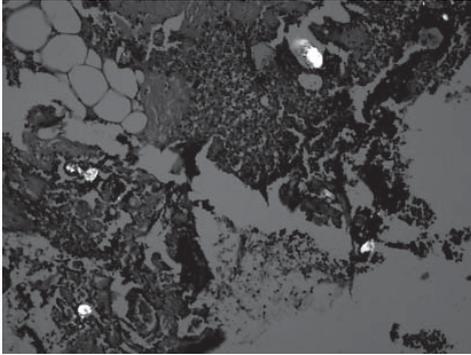


Figure 3.

measurement. The birefringent material is likely to be a phosphorus compound, supported by the clinical observation of very deep and very slowly healing burn wounds. White phosphorus may be used in war as a smoke screen. Its use against individuals is prohibited.

References

1. Van As S, Moro AV, Syring R et al. Final report. Independent fact-finding mission into violations of human rights in the Gaza Strip during the period 27.12.2008-18.01.2009. www.phr.org.il/phr/article.asp?articleid=708&catid=42&pcat=42&lang=ENG.
2. Krafft C, Steiner G, Beleites C et al. Disease recognition by infrared and Raman spectroscopy. *Journal of Biophotonics* 2009;2(1-2):13-28.
3. Wachsmann-Hogiu S, Weeks T, Huser T. Chemical analysis in vivo and in vitro by Raman spectroscopy – from single cells to humans. *Current Opinion in Biotechnology* 2009;20(1): 63-73.
4. Ray L, Frost RL, Reddy BJ et al. The molecular structure of the phosphate mineral turquoise – a Raman spectroscopic study. *Journal of Molecular Structure* 2006;788(1-3):224-31.

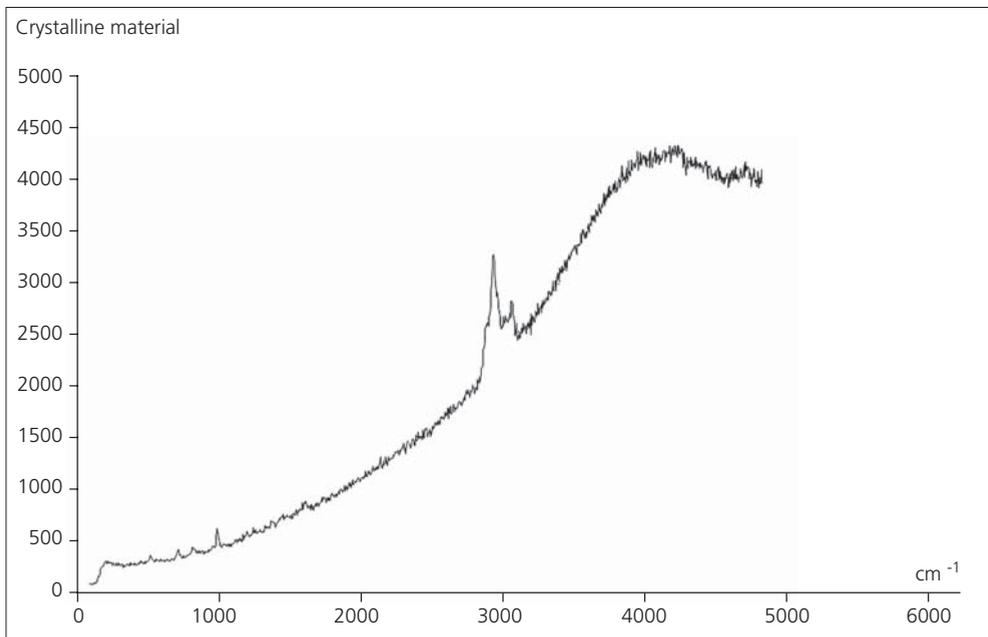


Figure 4.

Knowledge and quality of life in female torture survivors

Building health-related knowledge and quality of life through hHealth promotion and empowerment strategies among female expatriate torture survivors

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Abstract

Background

Immigrant women represent disadvantaged and vulnerable members of the torture survivor population. They tend to be isolated and have negative coping strategies resulting in poor health and well-being. The purpose of this pilot study is to develop and evaluate an educational and interactive women's health-based programme using health promotion and empowerment strategies, with the intent of using the knowledge gained to contribute to an ongoing women's health programme.

Methods

A one-group pre-test to post-test design was used with weekly intervention sessions over six weeks, with final evaluation on week seven. Topics covered included nutrition, exercise, healthy cooking, medications, personal and dental hygiene, women's health, and birth control. Achievement tests for health-related knowledge were developed by the principal investigator to match the content of each session. Tests were given before and after the session on weeks one through six, and tests on all content modules were repeated one week after the conclusion of the programme. The short version of the World Health Organization quality of

life scale (WHOQOL-BREF) was administered at the start of the first session and at the conclusion of the programme.

Findings

Participants' WHOQOL-BREF scores improved significantly from the beginning to the end of the programme. Improvements in achievement scores from pre to post test for each session and from pre-test to the follow-up test at the end of the programme were also statistically significant. Finally, the overall change from pre to post to follow-up achievement test scores was statistically significant. Observable changes in the women were also seen over the duration of the programme, adding confidence to the results and effectiveness of the intervention.

Implications

Little is currently known about health-based interventions for the vulnerable population of female torture survivors. Public health nurses and other professionals who work with this population have a unique opportunity to influence behavior change and promote empowerment in this population. The techniques employed in this study can be used by public health nurses as a basis for designing women's health-based programmes at other torture treatment centres throughout the world.

Key words: health knowledge, attitudes, practice, public health nursing, quality of life, torture survivors, vulnerable populations, women

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Background

Female survivors of torture who have fled to a new country represent a particularly disadvantaged segment of the world's immigrants, especially if their legal status is not secure. Female survivors are coping with a combination of post-torture sequelae, economic and legal stresses, and adaptation to a new culture. Their health and the health of their families can suffer significantly as a result. This study describes a public health nursing intervention to improve health-related knowledge and quality of life for a group of female survivors of torture.

Torture is governed by international human rights and humanitarian law and even though it is prohibited it is still practiced in over half of the world's nations.¹ Campbell² states that human rights groups report the use of torture as an epidemic, especially with the current state of world events. The worldwide prevalence of torture is difficult to estimate, but the rate among refugees alone has been found to be around 5-35%.³ Further, it is estimated that the number of torture survivors in the United States has reached well over 500,000.²

Up to this point, many rehabilitation programmes have focused their efforts on providing a strong mental health and social support system. Unfortunately, they are weak or non-existent in the health care arena. Because health can affect all aspects of a person's life, more treatment programmes are needed to address the health care needs of torture survivors.⁴ This is especially true for torture survivors in the United States, where a lack of universal health care and difficulties related to survivors' legal status can lead to a decline in their health and overall well-being.

Women survivors of torture

Women are just as likely as men to experience torture, as changes in warfare and

terrorism have caused torture to spread to vulnerable members of the community.⁵

Women who are exposed to torture are at greater risk of experiencing organized and gender-based violence, including rape.⁴ This factor contributes to the fact that of the torture survivor population, women as a whole can be particularly vulnerable. Because women torture survivors are poorly prepared for the risk of torture, they tend to have a greater amount of psychiatric problems and ineffective coping mechanisms as compared to males who have experienced similar torture. In addition, fear and shame from their experiences can persist, giving rise to isolation once they relocate.^{4, 6} All of these factors can play into the fact that women torture survivors can have a greater number of social problems, negative coping strategies, and experience the impact of fewer resources for their livelihood as compared to their male counterparts.^{5, 6} In addition, because humiliation from the torture itself can be ongoing, female survivors often have a harder time adapting to new and unfamiliar environments. These factors can impact all facets of their lives and can worsen existing physical and mental health problems, which in turn can affect women's overall long term survival and potential.

A community assessment conducted in 2008 by the Rocky Mountain Survivors Center (RMSC), the agency where this study took place, highlighted the special needs of women who are both new immigrants to the community and survivors of extreme trauma. Community participants remarked on the difficulty that immigrant women had in learning English if they remained at home to care for their children. Other women struggled to adjust to new roles as the family's economic provider. Women who customarily wore clothing that was unusual in the United States, such as

Islamic headscarves, felt uncomfortable in public and workplace settings. These linguistic, social, and cultural differences contributed to women's sense of isolation.⁷

Programme for women survivors of torture

Because women survivors of torture tend to suffer the most from the standpoint of isolation, dependence, and lack of acculturation, the aim of this project is to discover whether a women's health-focused programme directed by public health nurses could help to break the cycle of isolation and promote empowerment, independence, and adaptation. The program used health promotion and empowerment strategies that follow the current trend occurring in the health care arena, shifting from caring for disease to creating and maintaining good overall health. Health can be defined as a resource for everyday life, and can be measured holistically in terms of physical, social, and mental components, as well as health-related practices and resources for living.⁸ The World Health Organization (WHO)⁹ recognizes a need for more programmes that empower and encourage individuals, families, and communities to enhance their health and reduce their risk of acquiring non-communicable diseases. Health promotion techniques are geared to help individuals gain control over their health and environment by providing information and support to enhance their life skills.^{10, 11} Additional goals identified for health promotion include improving the health of people, respecting their diversity and maintaining dignity, as well as closing the inequality gaps in healthcare.¹² This type of programme is vital to the health and well-being of women torture survivors, as their current situation is not conducive to healthy living and health promotion strategies may aid in bridging this gap.

Another key component of current ap-

proaches to health promotion that can benefit female torture survivors is empowerment. Empowerment is defined by the United Nations High Commissioner for Refugees¹³ as "a process through which women and men in disadvantaged positions increase their access to knowledge, resources, and decision-making power, and raise their awareness of participation in their communities, in order to reach a level of control over their own environment." Research with torture survivors has shown that use of empowerment models has the greatest impact on improving the health and well-being of those affected.¹⁴ A high level of empowerment will be difficult to obtain unless trust among the survivors is regained, illness is stabilized and prevented, and symptoms from their negative experiences are reduced. Treatment programmes that focus on both a medical and psychological approach empower torture survivors by enabling experiences to be shared, allowing for the reprocessing of negative experiences and promoting active engagement in living a new life.⁴ Furthermore, these programmes can give torture survivors an increased sense of control and enhance relationships, interactions, and communication abilities. These changes can in turn decrease survivors' psychological symptoms and improve their overall health.¹⁵

The goals of health promotion for immigrants are numerous and aim to promote strength and enable their ability to play an active role in building a better life for themselves and their families.¹⁶ According to Anderson and McFarlane¹⁷ health promotion does not involve doing things for or to individuals, but rather doing things with them. Nurses have a unique opportunity to influence change and promote empowerment through health promotion programmes. The core of nursing, the nurse-patient relationship, brings trust and understanding, as well

as a holistic view of health. Because nurses perform diverse roles in multiple settings and interact with colleagues from a range of other disciplines, they are well-positioned to understand the complex issues inherent in health promotion. In addition, nurses are trained to understand differences and needs across individuals and communities.^{18,19} In view of these general nursing competencies, Pender's nursing-based health promotion model was used to guide the development of a programme for female torture survivors.

Pender's health promotion model, which began to appear in nursing literature in the early 1980's, was revised in the 1990's to incorporate three new variables, including activity-related affect, commitment to a plan of action, and competing demands and preferences. The model takes into account individuals' past experiences (which could include experiences of torture) and allows for flexibility so that individuals may choose to modify some aspects of their health, while others may not change. The model suggests that health-promoting behavior results from perceptions of self-efficacy, benefits, barriers, and activity-related affect. Individuals who choose to change their health behavior benefit from commitment to a plan of action, and must address competing demands and preferences that would interfere with healthy behavior. Pender's model as a whole provides a guided framework that is applicable to the female torture survivor population and includes a strong focus on self-efficacy, which was also a core component of the planned programme. In line with Pender's model, the female torture survivor health promotion programme's overall goal was to improve women's health-promoting behavior, with the expectation that improved health behavior would positively impact all aspects of women's livelihood, including their health, functional ability, and quality of life.²⁰

Design and methods

Study design

A pilot project was designed to test a women's health-based programme as the basis for a proposed long-term intervention at RMSC, which is one of 25 torture treatment centres in the United States and is located in Denver, Colorado. RMSC offers multidisciplinary professional services to survivors of torture and war trauma and their families. The professional services include public health nursing, therapeutic counseling, social services, and legal counsel. RMSC programme planning does not distinguish between primary and secondary survivors, nor between the various types of trauma suffered by the clients. This study grew from an informal women's health education group which had been conducted under the auspices of the public health nurses. This pilot study used a prospective, one-group pre-test to post-test quasi-experimental design. The intervention was delivered to female torture survivors in a group format, with six sessions completed at a rate of one per week, plus a final wrap-up session.

Participants

Nine female torture survivors were recruited, with inclusion and exclusion criteria based on the commonalities of women torture survivors who have been exiled from their home country, characteristics common among RMSC female clients. The inclusion criteria were: age greater than 18 years but less than 70 years; female gender; primary, secondary, or war trauma survivor; asylum seeker or refugee; lacking serious health problems that would limit participation in proposed activities; and a RMSC client or member of the immediate community. All of the women who participated had been directly exposed to torture, either having been victims themselves or having family members

who were victims or lost to torture. Some of the torture experienced included beatings, imprisonment, and sexual assault. In addition, many of the women came from war torn countries, and thus had been exposed to war trauma as well. Demographic data collected from all participants are presented in Table 1. Participant recruitment was done by personal or telephone invitation among women who participated in a prior needs assessment at RMSC, as well as additional referrals from RMSC staff members. Ten women initially consented to participate, with one participant dropping out before the first scheduled group session due to unknown reasons.

Procedure

This pilot project was approved by the Colorado Multiple Institutional Review Board. Informed consent and privacy forms were completed by all participants before the initiation of the study. Consent forms were provided in English only. Because many of the primary languages spoken by the women are based on dialects, therefore they are often better able to read and write English rather than their native language. In addition, many of the women come from regions in Africa where English is spoken, have previously learned English, and/or are immersed in English classes at RMSC or other facilities to learn, improve, or refine their English language skills. A professional female interpreter with a well-established relationship to RMSC was used to assist with explaining and answering questions for one participant.

Programme activities conducted for the study took place once a week for a total of seven weeks. Intervention sessions were conducted on weeks one through six, with final evaluation completed on week seven. Each session was four hours in duration

Table 1. Demographic data.

Variable	Categories	n
Age	18-30 years	2
	31-40 years	4
	41-50 years	1
	51-60 years	2
Country of origin	Africa	8
	South Asia	1
Language	English primary language	2
	English secondary language	6
	Does not speak English	1
	Ability to read English	Yes
	No	1
Ability to write English	Yes	6
	No	3
Occupation in home country	Never worked	5
	Nurse	1
	Teacher	1
	Laborer	1
	Accountant	1
Currently employed	Yes	1
	No	8
Time in the United States	6-9 months	1
	1-1.5 years	1
	1.5-2 years	1
	2.5-3 years	4
	Greater than 3 years	2
Educational background	No schooling	2
	Grade school	3
	High school	4
	Legal status	Asylum seeker
	Refugee	1
Health conditions	None	4
	Hypertension/heart disease	1
	Diabetes	1
	Pain	3
	Have children	Yes
	No	1

and focused on a particular health-related topic: nutrition, exercise, cooking, medications, dental and personal hygiene, women's health, and birth control. The topics were chosen based on the needs identified by the women who had participated in the earlier groups and the recommendations of the public health nurses familiar with the health concerns of the population. The sessions were conducted in English, with an

interpreter again available to interpret for one participant in her native language. Participants were given a reminder call the day prior to the session to decrease the chance of attrition. A van was rented to transport the women to the location of the intervention sessions, and childcare was provided at the facility by volunteers.

Intervention description

Group meetings for the session occurred at a rental facility adjacent to a large public park approximately five blocks from RMSC. Groups were led by the principal investigator, with additional assistance provided by public health nurses and study volunteers from RMSC. After arriving at the rental facility, participants completed the week's pre-test evaluation. To start the intervention session, group stretching was done to promote relaxation and physical activity. The group stretching consisted of basic exercises for the legs, arms, shoulders, and back, as well as deep breathing exercises typically utilized in meditation. The stretching was led by the principal investigator and volunteers, and by the end of the programme several of the women in the programme volunteered to lead the sessions. The stretching exercises occurred either in the park or inside the rental facility if there was poor weather. The educational session took place after the stretching and calming exercises, and, if applicable, the group proceeded off-site for an educational and interactive intervention (see Table 2). Upon completion of the intervention, the post-test evaluation was administered. A meal was then provided, with time to socialize and debrief before conclusion of the session.

Education was completed at the rental facility and the intervention site (if applicable). Handouts and visual aids were used to facilitate visual learning, as well as to

promote the women taking an active role in their learning. The curriculum for the intervention and related handouts were acquired from reputable health-related sources, including the U.S. National Institutes of Health, the U.S. Centers for Disease Control and Prevention, the U.S. Department of Health and Human Services, the U.S. Food and Drug Administration, and Planned Parenthood Federation of America. A sample of the outline used for the dental and personal hygiene teaching curriculum is provided in Appendix A. Handouts were also developed for each session, and are available from the first author upon request.

During each session, participants were given useful products relevant to the topic of the session to which they have limited access. For example, these products included grocery gift cards, athletic shoes, pedometers, cookware, thermometers, medication organizers, and hygiene products. These products helped to promote continued interest in the programme, and also enabled participants to put their new skills into the practice of their daily lives. These products were either acquired through donations or purchased, allowing up to \$25 (U.S.) spent per participant per session on these products.

Measures

Participant demographics: Demographic data were collected at the beginning of the first session. Participants filled out a demographic form, with an interpreter used for one non-English-speaking participant. Of particular note, there were four women in the programme who did not identify any pre-existing health issues. Because the goal of the programme was to improve overall health and prevent disease for those with and without health issues, women with a range of health status were included. In addition, it was decided that the women would

Table 2. *Topics, sites, and content used for the intervention sessions.*

Week	Topic	Location	Conducted session	Content
1	Nutrition	Local grocery store and rental facility	Principal investigator, who is a doctorally prepared nurse	Reading food labels, introduction to unfamiliar foods, the components that make up a healthy diet, portion control, weight control or weight loss, and meal planning
2	Exercise	Local park and rental facility	Principal investigator, who is a doctorally prepared nurse	How to incorporate low-to-moderate exercise into daily life, how much exercise is needed to maintain or lose weight, and the various types of exercise that can be done outdoors or indoors
3	Cooking	Rental facility which had a commercial kitchen	Principal investigator, who is a doctorally prepared nurse	Preparing inexpensive meals with food that the women have access to, including food obtained at RMSC or at local food banks
4	Medications	Rental facility	Principal investigator, who is a doctorally prepared nurse	Understanding over-the-counter, vitamin, and herbal medications, and how to read medication labels on prescriptions
5	Dental and personal hygiene	Rental facility	A local dentist conducted the dental component of the session, personal hygiene teaching conducted by the principal investigator	How to maintain adequate dental hygiene, personal hygiene standards in the U.S., and use of products to help maintain hygiene
6	Women's health and birth control	Rental facility	Women's health and birth control teaching conducted by the principal investigator, with teaching about sexually transmitted infections conducted by the Director of Health Care Services at RMSC, who is a doctorally prepared nurse	Gynecological health, birth control options, and how to prevent against sexually transmitted infections

not be asked about their psychological health because this was not the focus of the study, as well as the fact that the majority of the women were in other programmes at RMSC to support their psychological health. However, some items from the demographic information collected, such as their educational background, current working status, and legal status, can bring insight into the types of stresses that can affect the everyday lives of immigrants settling in a new country.

Quality of life: A quality of life scale was

chosen as this study's primary outcome measure because this construct represents a subjective measure of well-being that includes the physical and spiritual domains, as well as the accomplishment of life goals. Quality of life is a construct used by many disciplines, and health is an important dimension of quality of life.²¹ The brief WHO Quality of Life scale (WHOQOL-BREF) was completed by participants at the initiation of the first session and again at the completion of the programme. The WHO-

QOL-BREF is a 26 item short version of the 100 item WHOQOL scale, both of which were developed in the 1990's with the aim of creating a cross cultural quality of life assessment instrument. The WHOQOL and WHOQOL-BREF scales were developed with the expectation that they would be utilized to measure changes in quality of life resulting from interventions for a broad range of conditions and settings. This would in turn allow for comparison across multiple centres and cultures, giving increased confidence in the findings. The components of the WHOQOL-BREF scale are physical health, psychological health, social relationships, and environmental factors.²² Validity was demonstrated in a study by the WHOQOL Group,²³ which found that WHOQOL-BREF domains were representative and relevant for quality of life across several cultures. Permission to use this tool was obtained prior to initiation of the study.

The WHOQOL-BREF was available in English and French but all participants chose to complete the English version. Although the WHOQOL-BREF has four subscales, participants' scores were averaged across subscales for both the pre and post intervention measurement points in order to reduce the number of statistical tests performed with the small sample in this pilot study. Reliability (Cronbach's alpha) for the WHOQOL-BREF in the current study was $\alpha = 0.83$.

Health-related knowledge: To increase confidence that any observed changes in quality of life were in fact related to the intervention, participants' knowledge about relevant health-promoting behaviors was also tested immediately before and after each group session, and again at the end of the six-week intervention. Health-related knowledge was tested through multiple choice tests containing five items each, with four possible

answers for each question. Six achievement tests were developed by the principal investigator, one for each of the topics covered in the group intervention. Existing and pre-tested instruments on these topics either could not be found or were too complex for the English language skills of the target population. The achievement tests were provided in English and study volunteers helped women who had difficulty reading English to understand unfamiliar language. Because of this pilot study's small sample size, all six knowledge-based achievement tests were combined into a single 30-item measure, with observations at pre-test, post-test, and the week seven follow-up session. This 30-item achievement test showed acceptable internal consistency reliability, with $\alpha = 0.78$ in the current study.

Data analysis

Descriptive and inferential statistics were used to present the data. After calculating reliability statistics on each of the measures as presented above, distributions for participant demographics were examined. Paired two-tailed *t*-tests were then used to evaluate pre and post change on the primary outcome measure, quality of life. Repeated-measures analysis of variance (ANOVA) was used to compare participants' knowledge scores across the pre-test, post-test, and follow-up test. Each inferential test used an alpha level of 0.05, and effect sizes were estimated. Finally, a series of exploratory correlations were performed to examine possible relationships between participants' demographics and their quality of life and achievement test scores.

Results

Primary and secondary outcome measures

Participants' scores on both the quality of life and the knowledge measures improved;

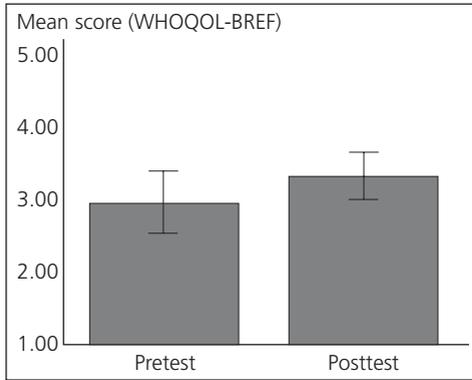


Figure 1. Change on WHOQOL-BREF. Error bars indicate 95% confidence interval for the mean.

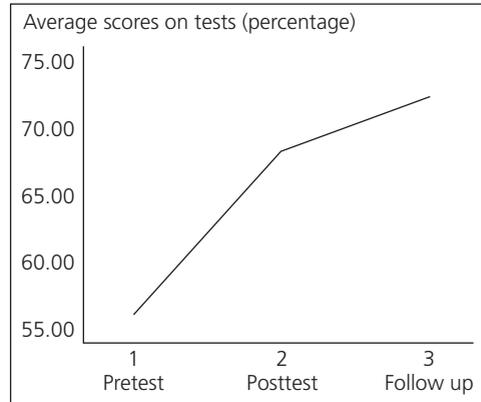


Figure 2. Data for pre, post and follow up achievement test.

these changes are illustrated in Figures 1 and 2. Participants' scores on the WHOQOL-BREF improved significantly from pre to post intervention, $t(8) = -2.92$, $p = 0.019$, representing a large effect, $r = 0.72$. Participants' scores on the achievement tests also improved significantly over the three measurement intervals, $F(2, 7) = 14.21$, $p = 0.003$, with a large overall effect size, $r = 0.79$. Post hoc tests revealed that improvements were statistically significant from pre to posttreatment, $t(8) = 3.05$, $p = 0.016$, with a large effect size, $r = 0.73$, and also from pre-treatment to the follow-up test, $t(8) = 5.60$, $p = 0.001$, with a slightly larger effect size, $r = 0.89$.

Exploratory analyses

Descriptive data were correlated with the WHOQOL-BREF and achievement pretest scores. There was a significant correlation between participants' current employment status and their WHOQOL-BREF scores. The remainder of the correlations for the demographics and either the WHOQOL-BREF pretest or achievement pretest scores were not significant (Table 3). Most of the

demographic variables had small to medium correlations to both the quality of life and achievement measures, with employment status and health conditions having the strongest relationships with participants' scores on the WHOQOL-BREF, and occupation in the participant's home country having the strongest relationship with participants' pretest knowledge scores on the achievement test. However, only one of these large effects met the criteria for statistical significance, which is likely due to this study's small sample size.

Observations

The principal investigator and additional leaders of the group sessions observed changes in the women as the programme progressed. At the initial intervention session the women were very reserved and quiet. They did not ask many questions and seemed hesitant to participate in the intervention. In addition, there was not much socialization during the shared meal. However, over the course of the programme the environment changed. The women began to actively participate in all components of the

Table 3. Correlations of demographic variables with WHOQOL-BREF and knowledge pretest data.

Demographic data	WHOQOL-BREF pretest	Knowledge pretest
Age	$r = -0.35$	$r = -0.07$
Language	$r = 0.47$	$r = 0.22$
Ability to read English	$r = 0.66$	$r = 0.28$
Ability to Write English	$r = 0.03$	$r = 0.57$
Occupation in home country	$r = 0.53$	$r = 0.71$
Current employment status	$r = 0.70^*$	$r = 0.17$
Time in the United States	$r = -0.44$	$r = 0.04$
Educational background	$r = 0.63$	$r = 0.35$
Legal status	$r = 0.49$	$r = 0.58$
Health conditions	$r = 0.84$	$r = 0.51$
Have children	$r = 0.46$	$r = 0.13$

*) $p \leq 0.05$

programme. As mentioned, several of the women volunteered to lead the stretching and calming exercises. During the intervention sessions, the women began to ask questions and relate their past and current experiences to what was being taught. Active engagement was a very helpful component of the programme, as it helped to clarify cultural misconceptions that could hinder the participant's adaptation to a new environment. The shared meal also became a time for stories and laughter, even in the mist of their current struggles. Finally, not only were significant results found with regard to the evaluation outcomes, but observable health-related behavioral changes were noted over the course of the programme as well. As hoped, there was evidence that the women did use the knowledge that they learned by incorporating the products that were given

into their everyday lives. For example, the week following the exercise class several of the women were wearing their athletic shoes and pedometers, and showed the group their log of the number of steps they had taken for the week. These observable changes in the women over the duration of the programme add confidence to the positive assessment and effectiveness of the intervention.

Discussion

The goal of this pilot study was to increase both health-related knowledge and quality of life through the use of health promotion and empowerment strategies, and the results demonstrated that these goals were achieved. Programme participants showed statistically significant improvements on both the knowledge and quality of life measures after completion of the programme. In addition, in an informal debriefing session at the end of the intervention all of the women stated that they enjoyed the programme, enjoyed being around the other women, learned something from the programme that they will use in their everyday life, will teach their knowledge to family and friends, would like to participate in an ongoing women's health programme, and would recommend the programme to family members or friends. In addition, eight of the nine women stated that they had formed friendships with the other women in the group. These findings suggest that the programme environment not only provided a sense of comfort and well-being, but also improved participant's health-related knowledge.

A key component of the programme was to promote self-efficacy and empowerment among the survivors. While an examination of the longterm effects from their participation in the programme will require additional follow up, some shortterm im-

provements were observed. As mentioned, when beginning the programme, many of the women were reserved and not open to active participation in the group. However, throughout the course of the programme several of the more reserved participants began to open up, share information about their lives with each other and actively engage in participation throughout the educational and interactive sessions. These observable aspects of the programme give insight into the improvements in self-efficacy and empowerment that can be made even over the short term. Additional follow up with further continuation of the programme will allow an examination of whether self-efficacy and empowerment positively affect women's quality of life and help them maintain a commitment to improving their health over time.

Due to the cultural differences inherent in working with immigrant torture survivors who encounter multiple stresses in their new life, it is very difficult to maintain interest and commitment for programmes. As observed by RMSC staff members and the principal investigator, many prior programmes at RMSC have had a large dropout rate and inconsistency in participation. In order to discover the reasons behind the lack of attendance at prior programmes, the initial needs assessment conducted in preparation for this programme queried potential participants about barriers to their participation. Many of the women stated that they do not often participate in programmes at RMSC due to barriers such as lack of transportation, long distances to travel to get to RMSC, perceived language barriers, prior engagements, appointments, working during group session times, fear of sharing feelings with strangers, cold weather, lack of child-care, cultural beliefs and barriers, lack of interest, and lack of incentives.

The identified barriers to participation were minimized in the programme with the study design, and thus this pilot study has been one of the most successful programmes completed at RMSC so far, as evidenced by the women expressing their enjoyment with the programme and making a commitment to attend each week. There was no attrition once the programme started, which prevented missing data and also speaks to the women's level of investment in the programme. The large effect sizes obtained for both the quality of life and knowledge measures also supports the effectiveness of the intervention. Although this was a small pilot study and cannot prove that the intervention is causally responsible for the observed improvements due to the lack of a control group, the results suggest that a health-focused group intervention for expatriate female torture survivors is a feasible and potentially helpful intervention to empower these women and improve their quality of life.

Limitations

This pilot study had several limitations. First, the sample size was small. A larger sample was not feasible due to the size of the target population, the cost and complexity of the intervention, and the inability of other women at RMSC to commit to a seven week programme. Even with this small sample size statistically significant results were found; however, participant self-selection remains a threat to the validity of the conclusions drawn. Additional studies with a broader population of female torture survivors are needed to determine whether the programme described here will be helpful to other women, or if its effects are limited to those women who are already able to commit to, and participate in, a group intervention. Participant demographics in the

current study were similar to those of other female torture survivors at RMSC, but the participants still may have been different in terms of psychological characteristics such as baseline self-efficacy, extroversion, or severity of symptoms related to past torture experiences.

Another limitation is that the achievement tests represent a new data collection instrument created by the principal investigator. Creating new instruments for programme evaluation can be problematic, as there is the risk of omitting potentially important questions. In addition, the instrument's reliability and validity was not previously established.²⁴ While these risks were unavoidable for the current study, retesting of the achievement tests occurred before and after the intervention, as well as one week after the completion of the programme so that a comparison of the scores could be analyzed and trends examined. Creating new instruments was necessary due to the lack of appropriate existing tools for the population and content to be covered for the intervention. Because the achievement tests used were newly created, they have not been verified in other settings or with other populations. Preliminary evidence for the reliability of these instruments was obtained in the current study, but threats to validity include the potential impact of practice effects with the same items or with the process of taking a multiple-choice test, which may itself be unfamiliar in the participant's home cultures. Participants' continued improvement on the knowledge items from post-test to follow-up mitigates these concerns to some extent. Although practice may have accounted for some of the improvement from pre to posttest, it is unlikely to have made additional contributions to the continued improvement seen from post-test to follow-up in Figure 2.

Threats to internal validity, such as history and maturation, cannot be ruled out due to the lack of a comparison group. Polit and Beck²⁴ define history as external events that can affect outcomes, and maturation as changes occurring due to the passage of time. It is possible that the women in the study learned some of the information from external sources. However, due to the isolated environments and lack of resources typically experienced by expatriate female torture survivors, it is unlikely that history effects played a significant role. The passage of time and improvement in other areas of the women's life, rather than the intervention, could have affected results on the outcome measures, especially the quality of life scale. However, none of the women reported a large change in their life circumstances over the seven week programme. Furthermore, increased knowledge was likely not the only contributor to improved quality of life; the women's responses to questions about their satisfaction with the programme and observable changes also indicated that the group was a source of enjoyment and social support, which are other plausible mechanisms for improvements in quality of life. The existence of multiple theoretically relevant methods by which group participation may improve quality of life tends to mitigate against the interpretation that obtained improvements were due to maturation alone. Finally, there was no attrition from the programme, so missing data or differential dropout are not plausible threats to interpretation of the results.

Future research

Additional research is needed to determine whether a programme such as the one described in this article will be effective to meet the eventual goal of promoting empowerment and self-efficacy in a broader group

of female torture survivors. Although initial participants may have been more highly motivated or committed than other women at RMSC, participation of additional women in the programme may be facilitated to the extent that the participants in the first programme are able to teach their knowledge and act as change agents in their communities. Future groups might incorporate previous group participants as co-facilitators and/or as a recruitment network to encourage other female torture survivors to join the programme.

This pilot study represents the beginning step in the process, but additional, progressive interventions will be needed to meet the demands of a complete health-based programme for the vulnerable and hard-to-engage population of female torture survivors. Additional instruments may be beneficial, as the achievement tests were novel measures created for this research. While many of the women performed very well on these tests, some of the wording, such as the terms “false” and “what is not” were misperceived by several of the women. In addition, incorporation of additional evaluation instruments, such as psychological measures and long-term indicators of health, will be important to determine the effectiveness of health-based programmes aimed at female torture survivors.

Conclusion

Because the sample of female torture survivors in this pilot study was typical of the population seen at RMSC, the empowerment-based health promotion programme described in this article may be applicable to a large population of female torture survivors. In addition, because women who are refugees but may not have been exposed to torture face similar challenges, the intervention could potentially be adapted to health-

based programmes for this population as well. Further study is needed to rule out the important challenge of selection bias, and future researchers may wish to examine important psychological characteristics that were not measured in the current study such as isolation, baseline self-efficacy, and severity of symptoms related to past torture experiences.

This programme did use multiple supportive measures to facilitate the effectiveness of the intervention. However, the participants reported that not all of the incentives provided, such as meals and the extent of the useful products, were necessary to promote success of the programme. The key supportive measures identified by the women included transportation to the site of the intervention, childcare, a few samples of products to help them use what they learned in the intervention, and a safe group environment. While all of these factors may not be feasible in future programmes, the core components of the programme can serve as a guideline for future development of health and empowerment-based programmes in other populations of survivors.

This pilot study was the first step in creating an ongoing women’s health-based programme at RMSC to help in improving the overall health and well-being of female torture survivors. An additional programme at RMSC is proposed, and due to the success of this study it will be used to guide the formation of the next step in the ongoing women’s health-based programme. In addition to the methodology described and limitations that will be considered in the development, the next programme will expand on the concepts discussed, add additional health-related topics, and encourage women to take an active role in teaching some of their acquired knowledge to each other. Once this is completed, the next goal will

be to bring the women back to their communities to act as agents of change.

This programme can be used as a model for women's health-based programmes at other torture treatment centres, as there is a lack of knowledge with regard to health-based interventions for this population. The current study will not only help to advance the knowledge of treatment programmes for female torture survivors, but also serves to emphasize the contributions that nursing theory and practice can have on the promotion of health, empowerment, and self-efficacy for vulnerable populations.

References

- Istanbul Protocol: manual on the effective investigation and documentation of torture and other cruel, inhuman or degrading treatment or punishment. New York and Geneva: Office of the United Nations High Commissioner of Human Rights, 2004. www.irct.org/Files/Filer/Extranet/legal/UNHCR_Istanbul_Protocol_2004.pdf
- Campbell TA. Psychological assessment, diagnosis, and treatment of torture survivors: a review. *Clin Psychol Rev* 2007;27:628-41.
- Piwoarczyk L, Moreno A, Grodin M. Health care of torture survivors. *JAMA* 2000;284:539-41.
- Quiroga J, Jaranson JM. Politically-motivated torture and its survivors: a desk study review of the literature. *Torture* 2005;15(2-3):1-112.
- Jaranson JM, Butcher J, Halcón L et al. Somali and Oromo refugees: correlates of torture and trauma history. *Am J Public Health* 2004;94:591-8.
- De Vriese M. Refugee livelihoods: a review of the evidence. United Nations High Commissioner for Refugees Evaluation and Policy Analysis Unit, 2006. www.unhcr.org/research/RESEARCH/4423fe5d2.pdf.
- Final report: The Horn of Africa Community needs assessment in the Denver Metro Area Colorado. Rocky Mountain Survivors Center, 2008.
- Breslow L. Health measurement in the third era of health. *Am J Public Health* 2006;96(1):17-9.
- Reducing risk, promoting healthy life. The World Health Report. Geneva: World Health Organization, 2002. www.who.int/whr/2002/en/whr02_en.pdf.
- The Ottawa charter for health promotion. First International Conference on Health Promotion. Ottawa: World Health Organization, 2008. www.who.int/healthpromotion/conferences/previous/ottawa/en/index.html.
- Kickbusch I. The contribution of the world health organization to a new public health and health promotion. *Am J Public Health* 2003;93:383-8.
- Global health promotion scaling up for 2015 – a brief review of major impacts and developments over the past 20 years and challenges for 2015. WHO Secretariat Background Document for the 6th Global Conference on Health Promotion. Bangkok: World Health Organization, 2005. www.who.int/healthpromotion/conferences/6gchp/hpr_conference_background.pdf (July 14 2005).
- A practical guide to empowerment. UNHCR Good Practices on Gender Equality Mainstreaming. United Nations High Commissioner for Refugees, 2001. www.unhcr.org/protect/PROTECTION/3bbc24532.pdf.
- Rehabilitation. International Rehabilitation Council for Torture Victims, 2008. www.irct.org/Default.aspx?ID=25 (2005-2008).
- Curling P. The effectiveness of empowerment workshops with torture survivors. *Torture* 2005;15(1):9-15.
- Health promotion and disease revention: an introductory article. Substance Abuse & Mental Health Services Administration, Center for Mental Health Services. www.refugeewellbeing.samhsa.gov/PDF/Toolkit/7_Health_Promotion_Article.pdf
- Anderson ET, McFarlane JM. Community as partner: theory and practice in nursing. 3rd ed. Philadelphia: Lippincott, Williams & Wilkins, 2000:Chapter 7.
- Nursing matters: ICN for mobilising nurses for health promotion. International Council for Nurses, 2000. www.icn.ch/matters_healthpromo.htm (1999-2008).
- Olshansky E. Nurses and health promotion. *Journal of Professional Nursing*. 2007;23(1):1-2.
- Pender NJ, Murdaugh CL, Parsons MA. Health promotion in nursing practice. 4th ed. Upper Saddle River: Pearson Education; 2002. Chapter 3.
- Bowling A. Measuring disease. 2nd ed. Philadelphia: Open University Press; 2001. Chapter 1.
- World Health Organization. WHOQOL-BREF introduction, administration, scoring and generic version of the assessment [document on the internet]. Geneva: World Health Organization; 1996. www.who.int/mental_health/media/en/76.pdf
- The WHOQOL Group. Development of the World Health Organization WHOQOL-BREF Quality of Life Assessment. *Psychological Medicine*. 1998;28(3):551-8.
- Polit DF, Beck CT. Nursing research: Principles and methods. 7th ed. Philadelphia: Lippincott, Williams & Wilkins; 2004. Chapters 8, 14, 18.

Test examples

Multiple choice knowledge-based achievement tests for nutrition, exercise, cooking, medications, hygiene and women's health and birth control were registered.

Example on nutrition and women's health and birth control are shown. Correct answers are marked with grey.

Nutrition

Please circle the one answer you think is right.

1. Other than meat, what foods have protein?
a. Beans and peanut butter
b. Bananas and oranges
c. Potatoes and peas
d. Bagels and popcorn
2. What is another name for sodium?
a. Sugar
b. Cholesterol
c. Fat
d. Salt
3. What foods help to have strong bones?
a. Bread and cereal
b. Nuts and seeds
c. Milk and cheese
d. Chicken and fish
4. On food labels, what should not be eaten that often?
a. Fats
b. Vitamins
c. Serving size
d. Fiber
5. What can you do to lose weight?
a. Drink more tea with sugar
b. Eat more meat
c. Drink less milk
d. Eat less calories

Women's health and birth control

Please circle the one answer you think is right.

1. How often should a pap test and pelvic exam be done?
a. Once a month
b. Once a year
c. Once every 5 years
d. Once every 10 years
2. How often should you do a self breast exam?
a. Once a day
b. Once a week
c. Once a month
d. I do not need to do self breast exams
3. What can you do to prevent vaginal infections?
a. Take long bubble baths
b. Wear satin underwear
c. Use vaseline and powder on the vagina
d. Wipe front to back after using the bathroom
4. What birth control protects against sexually transmitted diseases?
a. Condoms
b. Birth control pills
c. IUD
d. Depo provera
5. What is correct about emergency contraception?
a. Can be taken up to 1 week after sex
b. You do not need a prescription for it
c. Should be used as birth control
d. Protects against sexually transmitted diseases

Appendix A

Sample of curriculum outline

Outline for personal hygiene teaching

Maintaining good oral hygiene

- Use a fluoride toothpaste
 - Helps to prevent tooth decay
- Take care of teeth and gums
 - Tooth brushing
 - Flossing
 - Helps to prevent gingivitis (gum disease)
- Do not use tobacco
 - Increases risk of developing gum disease, oral and throat cancers, and tooth decay
 - Includes all forms of tobacco
 - Cigarettes
 - Pipes
 - Cigars
 - Chewing (spit) tobacco
- Limit alcohol intake
 - Increases risk of oral and throat cancers
- Eat a well balanced diet
 - Avoid lots of sugars and starches
 - Breads
 - Pastas
 - Rice
 - Beans
 - Crackers
 - Cereal
 - Limit snacks
 - Good snacks to eat
 - Fruits
 - Vegetables
 - Yogurt
 - Cheese
- Visit the dentist when possible
 - Helps to find problems early
 - 1-2 times per year
 - Drink lots of water
 - Prevents dry mouth
 - Avoid chewing hard candy or ice

How to brush your teeth

- Brush your teeth and gums
 - 2 times per day or after each meal
 - Place brush against your teeth at a 45 degree angle
 - Brush the outside and inside of teeth and gums
 - Brush your tongue
 - Brush by using up and down, side to side, and then in circles in short strokes
 - Brush for about 2 minutes
- Toothbrush
 - Use a soft bristled toothbrush
 - Replace every 3-4 months or when frayed
- Toothpaste
 - Fluorinated toothpaste

How to floss your teeth

- Use about 18 inches of floss
- Wrap around middle fingers
- Gently glide floss between teeth until you reach your gums
- Move floss up and around the tooth
- Use clean floss for each tooth
- Gets places your toothbrush cannot reach
- Floss every day

Mouthwash

- Use fluorinated mouthwash
- Put a small amount in your mouth and swish between your teeth
- Keep in mouth for about 30 seconds
- Spit out mouthwash
- Do not swallow mouthwash
- Gets rid of bacteria

When to see a dentist (if possible)

- Gums are red, swollen, or painful
- Gums bleed a lot
- Gums that are coming away from your teeth
- Tooth pain
- Pus in the teeth or gums
- A bad taste in your mouth
- Loosing teeth
- Sensitive to hot and cold
- Pain when eating or drinking

Common dental problems

- Plaque
 - Sticky film that forms on teeth
 - Has bacteria
 - Causes acid that rots teeth
 - Can cause tooth decay and gum disease
- Tarter
 - Hard plaque
- Cavities
 - Decayed areas of teeth
 - Causes opening or holes in the teeth
 - Caused by plaque
 - Can lead to pain, infection, and tooth loss
 - More often in back teeth
- Gingivitis
 - Damage to gums from plaque and tarter
 - Causes gums to bleed easily
 - Can lead to tooth loss

Maintaining healthy dark skin

- Cleansing
 - Clean your skin daily to remove dirt, oil, and makeup
 - Avoid abrasive products that can irritate the skin
 - Gently massage skin
 - Use products for your skin
 - Dry
 - Oily
 - Sensitive
 - Normal
- Limit time in the sun
 - Avoid the sun if possible between 10 am and 4 pm
 - When sun rays are strongest
 - Use sunscreen while in the sun
 - Spf 15 or higher
 - Apply 20 minutes before going out in the sun
 - Re-apply about every 2 hours
 - Wear protective clothing
 - Hats
 - Sunglasses
 - Avoid tanning beds
- Still at risk for skin cancer
 - 3 types of skin cancers
 - Mostly curable if found early
 - Check your skin once a month
 - Use a hand mirror to look at your whole body
 - Look in between fingers and toes
 - More often found on hands, fingers, feet, toes, nails, and mouth in darker skin individuals
 - Things to look for
 - Dark brown or black spots
 - New spots
 - Changes in old spots
- Melanoma
 - More dangerous type of skin cancer
 - ABCDEs of melanoma
 - Asymmetry (one side looks different than the other)

- Border is irregular
- Color changes or more than one color
- Diameter (size greater than a pencil eraser)
- Evolving (changing in shape or size, itching, tender, or bleeding)

Common skin conditions

- Dry skin
 - Causes
 - Not drinking enough water
 - Too much sun
 - Dry weather
 - Stress
 - Soap
 - Perfume
 - Hot baths
 - Symptoms
 - Flaky skin
 - Itchy skin
 - Cracked skin
 - Prevention
 - Avoid long hot baths or showers
 - Apply moisturizers when you get out of the shower and throughout the day
 - Use sunscreen
- Contact dermatitis
 - Causes
 - Cleansers, toners, or astringents with alcohol, propylene glycol, fragrances, or dyes
 - Moisturizers with fragrances, lanolin, dye, alcohol, or propylene glycol
 - Sunscreens with fragrances, oil, or PABA
 - Makeup with oil
 - Detergents and fabric softeners with fragrances, dyes, or preservatives
 - Symptoms
 - Burning skin

- Stinging skin
- Redness
- Itchy skin
- Prevention
 - If causing sensitivity, use fragrance and preservative free products

Maintaining healthy hair

- Clean hair and scalp
 - Wash hair every 7-14 days depending on the type of hair that you have
 - Condition after shampooing
 - If you have a dry, flaky scalp try a dandruff shampoo
 - If still dry and flaky see a doctor
- Brushing
 - Only brush hair as needed to comb or style
 - Do not over brush hair
- Combing
 - Comb when it is wet to get out tangles
 - Use a wide toothed comb
 - Combing when dry can break hair
- Heat
 - Limit heat applied to hair
 - Includes blow dryers, curling irons, or hot rollers
- Cutting
 - Trim hair every 8-12 weeks to get rid of damaged hair
- Chemicals
 - Limit chemicals in the hair
 - Do not use relaxers and hair dye together
- Hair products
 - Limit use of hair sprays, gels, or mousse
 - Decrease natural lubricants in the hair
- Tie back hair
 - During bad weather such as wind, sun, or cold
 - While you sleep
 - Sleep on soft pillows

- Well balanced diet
 - Vitamins and protein are needed for hair growth

Maintaining healthy nails

- Limit use of harsh soaps
 - Can dry nails
 - Use mild soap
- Protect from weather
 - Wind and dust
 - Cold
 - Dry
 - Wear gloves in the winter
- Use hand cream or moisturizer
 - At least 2 times per day
 - Rub into hands, feet, and nails
- Keep nails short
 - Clip long nails
 - File down shorter nails
- Keep nails clean
 - Remove dirt under nails
- Limit use of nail polish or fake nails
 - Can cause dry, easily breakable nails
- Look at nails regularly
 - Skin cancer can grow under fingernails and toenails
 - Look for ABCDEs of melanoma

Cleansing practices in the United States

- Wash all parts of body
- Shower daily or every other day, or as needed if you have been sweating or have an odor
- Wash hair enough to prevent oily hair
- Brush hair and keep neat
- Keep nails clean
- Keep toenails short
- Use deodorant for underarm odor
- Use antiperspirant for sweating in the underarm with odor
- Women shave hair in underarms and legs
- Women typically remove long hair from face

ERRATA

At page 130 of TORTURE 2009;19(2) under “5. Legal consequences: the implementation of the Court’s ruling”, there is a reference to moral damages in a bracket as \$5,000. It should have read \$500,000 (half a million dollars and not five thousand dollars).

At page 118 of the same issue the title of the author is incorrect. The author holds an LLM (Master of Laws).

Punishing physicians who torture: A work in progress*

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Abstract

Background: There are only a few anecdotal accounts describing physicians being punished for complicity with torture or crimes against humanity. A fuller list of such cases would address the perception that physicians may torture with impunity and point to how to improve their accountability for such crimes.

Methods: We performed a multilingual web search of the records of international and national courts, military tribunals, medical associations (licensing boards and medical societies), medical and non-medical literature databases, human rights groups and media stories for reports of physicians who had been punished for complicity with torture or crimes against humanity that were committed after World War II.

Results: We found 56 physicians in eight countries who had been punished for complicity with torture or crimes against humanity. Courts punish crimes. Medical societies punish ethics violations. Fifty-one physicians (85%) had been punished by the medical associations of five countries. Eleven (18%) had been punished by domestic courts.

International courts had imprisoned two (3%) physicians. Several were punished by courts and professional associations. There are open cases against 22 physicians.

Conclusions: Punishments against physicians for crimes against humanity are becoming institutionalized. Medical associations must lead in shouldering responsibility for self-regulation in this matter.

Physicians have supervised torture ever since medieval “Torture Physicians” certified that prisoners were medically capable of withstanding the torture and of providing the desired testimony. Revelations of sadistic medical experiments on prisoners during World War II turned the world against physician torturers and led to the “Doctor’s Trial” at Nuremberg, a trial that held physicians accountable for crimes against humanity.¹

This paper describes the largest case series of physicians who have been punished for abetting torture or other crimes against humanity committed after World War II. We wanted to: 1) describe and categorize the hearing procedures, 2) identify the roles of punished physicians, 3) categorize acts for which physicians are punished, and 4) describe the political cultures in which punishments arise. Our larger aim was to learn whether punishments against physicians for abetting torture or crimes against humanity occur under sufficiently diverse environments as to inform generalizable public policy to punish and perhaps to deter this kind of medical misconduct.

Key words: torture, human rights, ethics medical, prisons, military medicine, war

*) For a currently updated list of physicians punished for torture or crimes against humanity see Dr. Miles’s website: www.ahc.umn.edu/bioethics/facstaff/miles_s/home.html

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Methods and limitations

There is no comprehensive list of physicians who have been punished for abetting torture or crimes against humanity. We searched for punishments against acts that took place after World War II. We included acts that the materials defined as government-sponsored torture, murder, kidnapping, genocide, or crimes against humanity, etc. We did not search for physicians who were involved in making biological or chemical weapons of mass destruction. We searched for four kinds of hearing venues: international courts, national criminal courts, military tribunals, and “medical associations” (a term that includes “licensing boards” and “medical societies”). In that extraordinary tribunals were sometimes convened to prosecute these crimes, we defined a “court” as a body that had the power to imprison, court martial, order defendants to pay damages to victims or their survivors, or to revoke a government pension. Each “case” had a formal charge and a completed hearing that ended in a punishment. We define a case as being “in progress” from the time that an indictment, summons or arrest warrant was issued until the end of the hearing. We note cases where a proceeding was mooted by a physician defendant’s death. We do not include cases ending in acquittal or the many instances where general amnesties precluded charges being brought against physicians for abetting torture. However, we do include cases in which physicians were found culpable and subsequently excused by general amnesties or pardons. We did not tabulate cases involving nurses, midwives, psychologists, and medics.

We searched online in the medical and non-medical literature and media in European languages, Westlaw, Lexis Nexis, the European Court of Human Rights (HUDOC) database, University of Minnesota

Human Rights Library, WorldCat and Trial-Watch. Relevant citations were backtracked. We contacted human rights organizations and torture treatment centers in the United States, Europe, and Latin America and searched their on-line archives. We used the Google translator to identify relevant material from foreign medical associations and news media in French, German, Portuguese, Spanish, Greek, Turkish, and Hebrew. A person competent in that language reviewed all translations. An Excel spreadsheet of cases and supporting citations is available on line www.ahc.umn.edu/bioethics/facstaff/miles_s/home.html.

This is qualitative research. Case materials varied in completeness and usually described, rather than specified, charges and punishments. Variations in legal codifications, the licensing authority of medical societies, and the independence of courts and medical associations from executive or legislative control were barriers to a precise tabulation of findings.

This is a convenience sample and not an exhaustive compilation. Some cases have not been discovered. Our imperfect search methods were biased to western languages and to organizations and news media in worldwide web archives. We saw references to the practice of sealing punishments from public records. For every punished physician, we saw several more who gave self-incriminating testimony against colleagues usually in exchange for immunity or amnesty. For every punished physician, human rights groups have named many more and were working to have them held accountable. We did try contacting many organizations for additional information but because of short resources and possibly an intimidating political environment, received no information beyond that which we had already located.

Results

In 1975, Greece became the first country to punish a physician for torture committed after World War II. As of mid 2009, we have found 56 physicians in eight countries who have been punished for torture or crimes against humanity. See Figure 1. Of these, 46 (82%) had been punished by medical societies or licensing bodies of five countries. Ten (22%) have been convicted and usually imprisoned by national courts in four countries (Argentine and Chilean medical associations have punished two of these). International courts imprisoned two (4%) physicians from former Yugoslavia. In addition, we have found open cases against 18 physicians. Fifteen of these are undergoing their first hearing, two more died after charges were filed. Nine are facing criminal charges after being punished by a medical association (an Argentinean physician died awaiting trial). A South African physician was acquitted by a criminal court and is now in a licensing board hearing. An unpunished Argentinean physician is facing two trials in domestic and international courts. (Figure 1 shows the activity of ongoing cases).

Although medical associations and criminal courts punish the same acts, (i.e., torture, murder, kidnapping, falsifying death certificates, etc.), the grounds for civil or criminal punishments differ. Medical associations punish violations of medical ethics. For example, Uruguayan associations condemned medical complicity with torture and affirmed the World Medical Association's Declaration of Tokyo against physician complicity with torture. They then convened a Medical Ethics Court that rejected the idea that military and civilian physicians had different ethical duties with regard to the treatment of prisoners and expelled thirteen physicians.^{2,3} Argentina convened a medical ethics conference at a university that sym-

bolically censured three physicians for violating the Hippocratic Oath, the National Code of Ethics, and international medical ethics standards.⁴ The Ministry of Health dismissed a fourth physician from Directorship of Emergency Services at a hospital although he continued to work as a clinician. Civilian medical organizations levy diverse punishments including public and private censure, modest fines, revocation of awards, suspension or revocation of licenses, or expulsion from the association.

Courts prosecute crimes. Most charges include murder, kidnapping (e.g., falsifying birth certificates of the newborns of murdered prisoners), or falsifying public records (e.g., death certificates). "Torture" per se is rarely indicted because it is rarely a codified crime. In late 1999, a Spanish judge, Baltazar Garzón, invoked universal jurisdiction and the right of extradition to charge members of the Argentine armed forces, including three physicians, with crimes against humanity. These warrants have survived court challenges; trials are getting underway. With one exception, military tribunals have not held physicians accountable for torture. After the Greek junta fell, Dr. Dimitri Kofas was court martialed and imprisoned for "dereliction of duty" by supervising prisoners under torture.⁵ Criminal courts impose fines of varying sizes or imprisonment (for up to life). We could not find a pattern of punishments relative to the gravity of the abuses. The death penalty has not been sought although a Chilean military physician who had been expelled from the medical association was assassinated, apparently for being a physician-torturer.⁶ We saw references to several civil suits against torturers but only one seems to have resulted in an award. That Brazilian court revoked the pension of a military physician and ordered him to pay damages to a victim's family.⁷

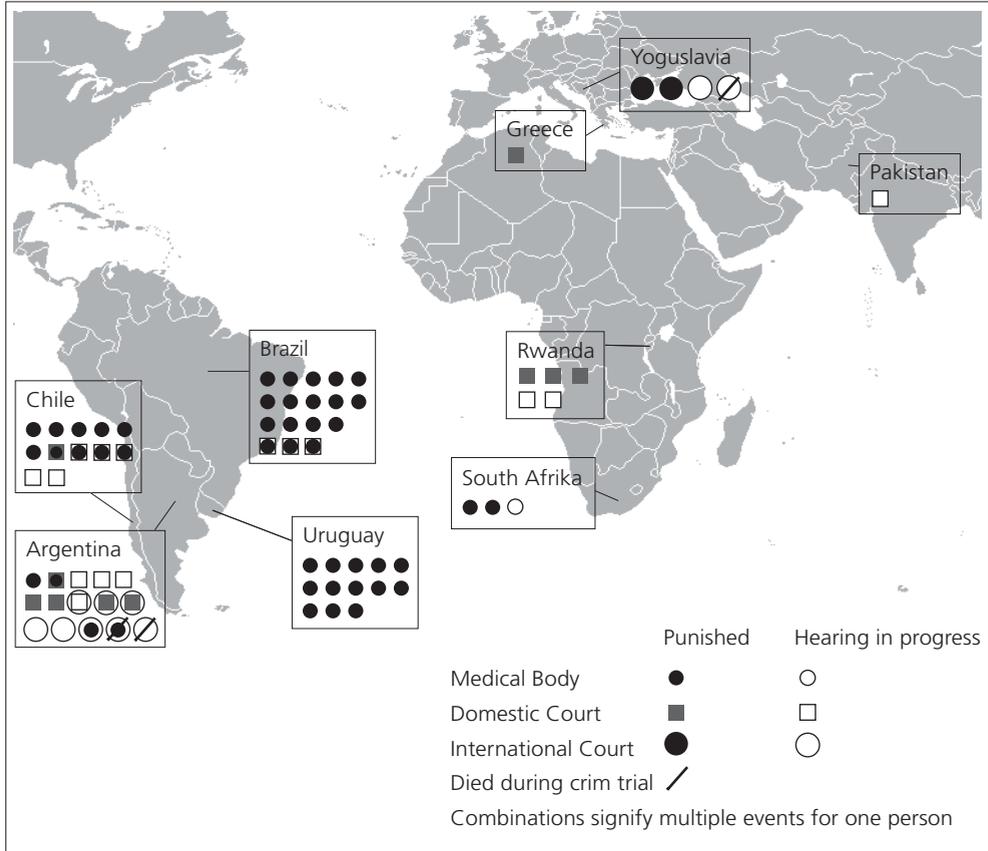


Figure 1. Physicians sanctioned for torture and crimes against humanity

A different kind of prosecution arises when domestic or international courts hear cases about mass atrocities where the defendant physician held a senior *non-clinical* government position. In such cases, the charges refer to mass crimes (e.g., genocide, or mass murder) rather than crimes against named individuals. An international court imprisoned two physicians and is trying a third for their governmental roles during genocide in the former Yugoslavia. Rwandan *gacaca* courts have imprisoned three doctors

(two clinicians and one government official) for abetting crimes against humanity. Two more Rwandan physicians, both former government officials, are under trial.

Very few physicians who torture are ever identified. Of those identified, few are subject to hearings. Regional medical boards in Rio de Janeiro and São Paulo Brazil received allegations against 110 physicians and had opened proceedings against forty by 1996.⁸ As of now, Brazil's medical associations have punished 17 physicians. The Chilean Col-

lege of Medicine says that more than 80 physicians participated in acts of torture; ten have been punished.³ It is estimated that more than 200 Argentinean physicians collaborated with torture; six have been punished.³

In addition to the formal system of hearings and punishments by courts and medical associations, South American human rights groups have developed an important system of denouncing. As one group's name, "Si no hay Justicia, hay Escrache!" (If there is no Justice; Denounce!) implies, these groups shame alleged torturers who have not faced hearings. These human rights groups have websites with photographs of the alleged torturer. They summarize his military service, name the victims and post the home and work addresses and phone numbers of the alleged torturer. Many such websites focus on physicians, citing the betrayal of medical, often specifically Hippocratic, ethics. These groups hold demonstrations at alleged torturers' homes.

Our source material does not provide systematic information about the motivations of the punished physicians. During their hearings, most physicians denied knowingly participating in atrocities. Some cited patriotism, military duty or a national emergency. A few said that they were afraid of being tortured, a plausible claim in South America where physicians tortured their colleagues and medical students.³ Brazilian psychiatrist, Amilcar Lobo, who admitted overseeing the torture of 500 prisoners, offered this chilling defense, "man has used torture and assassination for thousands of years and permitted it as long as it is socially organized. It is but an instant between the Inquisition's torture and murder of the Jews and the Nazi regime's similar actions forty years ago. This is human nature; I am not ashamed to be part of it."⁹

Discussion

Civil and criminal mechanisms to hold physicians accountable for complicity with torture and other crimes against humanity have been built in a handful of countries on three continents. The many hearings that are currently "in progress" suggest that physician accountability is moving from innovation to institutionalization. The common features of the development of these institutions are worth noting.

National development of these institutions can be understood as being at one of several "steps."

Step I: Nations like Libya or North Korea suppress discussion of physician complicity with torture.

Step II: Nations like the Egypt, the United States, the United Kingdom, the Philippines, or Venezuela condemn physician complicity with torture in principle but have not punished government physicians who collaborated with it.¹⁰⁻¹⁴

Step III: Nations like Greece or South Africa have focused on a symbolic physician or incident.

Step IV: Nations like Argentina, Brazil, Chile, or Uruguay have created systems to regularize punishing physicians for torture and crimes against humanity.

These national differences are steps, not types, in that they suggest a progression and targets by which to measure the success of human rights work as nations move from Step I to II and then to III and IV. The punishment of physicians for crimes against humanity committed in their capacity as senior *non-clinical* government officials, as exemplified by the current trial of Radovan Karadzic of the former Yugoslavia is a somewhat different matter.

Governments shelter their physicians who abet torture. Armed Forces are hostile to punishments.¹⁵ Some governments re-

quire cases to be screened by courts sympathetic to the military. Others grant general amnesties, excuse actions that were under orders, or institute retroactive statutes of limitations that preclude cases from being filed.¹⁶ Some governments obstruct hearings against their physicians. In 1984, Uruguay's Defense Ministry barred military doctors from testifying at civilian medical boards' torture investigations. In 1985, it barred access to prison medical records.¹⁷ In Brazil, the military government exempted military doctors from discipline by regional medical boards and overturned punishments by licensing boards.⁸ Chile and Turkey set up government-controlled medical associations to abrogate accountability to civilian medical societies and their codes of ethics.^{18,19} Some physicians are allowed to continue to practice in government or military medical centers after their licenses have been revoked.³

Institutions for punishing physicians for torture arise from civil society. Typically, the press or groups (e.g., Argentina's Mothers of the Plaza de Mayo) compile evidence of atrocities and mobilize public support for accountability.¹⁶ Early activists, including physicians, are often threatened, sued for slander or for defaming the state, forced into exile, arrested, tortured or killed.¹⁹⁻²¹ In one ironic prosecution, Turkey fined Dr. Tufan Kose \$100 for "concealing torture" because he would not surrender records of examinations of torture survivors to the police.²² Complaints against government officials, including physicians, are rejected.²³ It is difficult to accumulate evidence. The prisons are secret. Government records are destroyed. Modern torture is often designed to minimize scars. Survivors are often blindfolded and are psychologically traumatized. Corpses are often mutilated, burned, or disposed of at sea.

The delay between crimes, complaints

and punishments varies with how long it takes torturing regimes to lose power and for civil society to reorganize. In Greece, a cataclysmic rejection of torturing regimes enabled courts to promptly punish torturers, perhaps pre-empting punishments by medical associations. In Uruguay, Chile and Brazil, where the power of juntas more slowly ebbed, medical societies acted despite the resistance of governments. The Chilean Medical College could not act until repressive controls were relaxed.⁹ Medical associations' responses however are often tempered by their political affinities with torturing regimes. For eight years, the South African Medical and Dental Council dismissed or tabled complaints against the doctors who neglected Steven Biko as he died of torture in 1977.²⁴ It still has not punished any of the many other physicians who collaborated with torture during the Apartheid era. Brazilian medical associations were initially reluctant to address medical complicity with torture. Today, they have opened a working relationship with a human rights group. The Regional Medical Council of Sao Paulo Brazil accepts that amnesty has a limited role in truth finding but asserts, "Amnesty is only legitimate for benefiting the victims of torture. It may not be used to protect torturers."²⁵ A swifter response is possible when leaders are brave and civil society, including the international human rights and medical community, urges action and creates some protective scrutiny. The Uruguayan medical association expelled Dr. Saiz Pedrini within a year for falsely certifying that Dr. Rozlik had not died of torture. Different nations highlight different kinds of physician misconduct. Chilean and Uruguayan physicians were largely punished for torture and murder. Brazilian physicians were largely punished for falsifying death certificates. Argentine

physicians who issued false birth certificates to transfer the newborns of soon-to-be murdered women prisoners to soldiers were prosecuted for kidnapping.

These national histories show the importance of the medical profession to the practice and deterrence of torture.³ Torturing regimes need physician accomplices to design methods that minimize scars, to keep alive those who are supposed to survive, and to conceal the cause of death of those who die.^{26,27} Perhaps half of torture survivors report seeing a physician supervising their torture.²⁸ Even as physicians are integral to modern torture, the medical profession is a steward of norms that oppose the abuse of prisoners. Many medical associations and human rights groups, for example, cite the Hippocratic Oath in condemning medical complicity with torture. In these norms, the medical profession and its associations, even those that have regulatory roles such as licensing, belong less to governments that torture than to civil society where the opposition to torture is generated.

These national histories suggest how medical associations might more effectively deter medical complicity with torture and perhaps torture itself.^{29,30} In that torture is a government activity, it is incumbent on medical societies to shoulder the defining responsibility of a profession, self-regulation in the service of fundamental moral aspirations. Most torturing regimes eventually fall and those nations often return to more civil conduct. During times of civil society, medical associations should assert that complicity with torture is a punishable breach of medical ethics for which accountability will endure even if investigations must be deferred until a torturing regime loses power.³¹ However, Uruguay, Brazil, Chile and Argentina show that such anticipatory steps are neither

a prerequisite for punishments nor an excuse for inaction. In those nations, medical associations creatively articulated standards and established procedures after physician complicity with torture was discovered.

International medical organizations should go beyond condemning medical complicity with torture to nurturing stronger forms of accountability by national medical communities.^{32,33}

In that torture is a government activity, governments may be expected to play a minor role in holding torturing physicians accountable. We have shown that the impetus for holding physicians accountable arises from civil society including human rights groups, medical associations and the informal denouncing organizations. Courts enter late and punish few. International courts focus on senior government officials and not on prison staff, such as physicians who carry out torture. In the United States, California has passed a resolution asking medical boards to inform licensees that complicity with torture violates laws.³⁴

The natural history of efforts to sanction physicians for torture suggests a new attainable human rights effort. A principal problem facing the nascent effort to end physician impunity for torture is the lack of knowledge that such efforts are occurring at all. Figure 1 is surprising. The diversity of sanctions as well as the interplay of courts, licensing boards, membership medical societies and human rights groups is unexplored territory. A comprehensive web-based archive of cases where physicians have been judged guilty of complicity with torture would greatly assist the development of these institutions and it would be a caution to governments and physicians that currently have good reason to believe that physicians who torture will go unpunished. Such an archive should contain

durable links to primary source documents. The maintenance of such an on-line archive would be a commendable activity by a human rights organization, torture survivor treatment network or possibly the World Medical Association. By contrast, the unsuccessful effort to establish an independent “International Tribunal for Investigation of Torture” to hear evidence and make findings regarding physicians and lawyers who participated in torture suggests that it will be difficult to establish, fund, sustain, and empower a new international institution of that nature.³⁵

Dr. Miles will continue to update this list of physicians who have been punished by courts or medical boards for complicity with torture or crimes against humanity. For example, there are new developments in Rwanda and Chile as this paper is going to press. An updated Excel sheet, map, and graphics will be maintained at Dr. Miles website, www.ahc.umn.edu/bioethics/facstaff/miles_s/home.html. Dr. Miles solicits information about new cases of confirmed punishments. Pdfs and URLs of links to authoritative media or human rights organizations accounts, court records, or licensing boards are greatly appreciated. All submissions will be independently verified before posting. The confidentiality of persons submitting information is assured: their names will not be published. Please communicate with Dr. Miles with any questions at miles001@umn.edu

References

1. Annas GJ, Grodin MA. The Nazi doctors and the Nuremberg Code: human rights in human experimentation. US: Oxford University Press, 1995.
2. Expulsion FEMI: Dr. Juan Antonio Riva Buglio. <http://memoriaviva5.blogspot.com/2008/07/expulsin-de-femi-doctor-juan-antonio.html> (October 7 2008)
3. Danish Medical Association and International Rehabilitation and Research Center Proceedings. Doctors, ethics and torture. Danish Med Bull 1987;34:185-216.
4. Kordon DR. Impunity's psychological effects: its ethical consequences. J Med Ethics 1991;17(suppl):29-32.
5. Amnesty International. Torture in Greece: The First Torturers' Trial 1975. Canada: Random House, 1977.
6. Asesinato del Mayor de ejército, Carlos Hernán Pérez Castro y de su cónyuge [Assassination of Army Major Carlos Hernan Perez Castro and his spouse]. <http://Despiertachile.Wordpress.Com/2008/03/03/Occurrio-Un-3-De-Marzo/> (March 3 1991).
7. Consultor Juridico. MPF quer responsabilizar agentes por tortura [Federal Public Ministry of officials held responsible for torture]. www.conjur.com.br/2009-mar-03/mpf-responsabilizar-agentes-doi-tortura (March 3 2009).
8. Amnesty International. Brazil: human rights violations and the health professions. <http://asiapacific.amnesty.org/library/Index/ENGAMR190251996?open&of=ENG-346> (October 1996).
9. Lobo A. A Hora do Lobo e a Hora do Carneiro [The hour of the wolf and the hour of the sheep]. Quoted by Besserman HV. O Real da Ética [The ethics of the real]. Palestra proferida em Tours, August 17 1998. www.geocities.com/HotSprings/Villa/3170/HelenaBessermanVianna2.htm
10. Miles SH. Oath betrayed: America's torture doctors. University of California Press, 2009.
11. European Court of Human Rights. Ireland v. United Kingdom (Application no. 5310/71, para 120). Strasbourg, January 18 1978.
12. Organization of American States, Inter-American Commission on Human Rights. Report on the situation of human rights in Venezuela. Chapter 5. www.cidh.oas.org/countryrep/Venezuela2003eng/chapter5.htm (December 29 2003).
13. Pagaduan-Lopez J. Medical professionals and human rights in The Philippines. J Med Ethics 1991;17(suppl):42-50.
14. Beshir ESM. How to struggle against torture. J Med Ethics 1991;17(suppl):62-3.

15. Lucas T, Pross C. Caught between conscience and complicity: human rights violations and the health professions. *Med Glob Surviv* 1995;2:106-14.
16. America's Watch. Truth and partial justice in Argentina. USA, 1987.
17. Uruguay: Los médicos cómplices de la dictadura militar [Uruguay: the medical accomplices of the military dictatorship]. *Viejo Blues* June 5 2008. www.viejoblues.com/Bitacora/node/6359
18. Cilasun U. Torture and the participation of doctors. *J Med Ethics* 1991;17(suppl):21-2.
19. National Academy of Science. Scientists and human rights in Chile: report of a Delegation http://books.nap.edu/openbook.php?record_id=9732&page=1 (1985).
20. Human Rights Watch. Syria: Harsh Sentences for Democratic Opposition. www.hrw.org/legacy/english/docs/2008/10/30/syria20109_txt.htm (October 30 2008).
21. Gregorio Martirena, dirigente de FEMI. [Director Gregorio Martirena]. Sindicato Médico del Uruguay. www.smu.org.uy/publicaciones/noticias/separ99/art6.htm.
22. Physician charged in Turkey, AAAS Science & Human Rights Program. AAAS Human Rights Action Network Alert May 12 1997. http://shr.aaas.org/aaashran/alert.php?a_id=58.
23. Brazil Archdiocese of São Paulo. Torture in Brazil: a shocking report on the pervasive use of torture by Brazilian military governments 1964-1979. Tr. Joan Dassin. University of Texas Press, 1998.
24. McLean GR, Jenkins T. The Steve Biko affair: a case study in medical ethics. *Devel World Bioethics* 2003;3:77-95.
25. Conselho de Medicina de Sao Paulo. Questão de justice [A question of justice]. www.cremesp.com.br/?siteAcao=Revista&id=388 (April 2 2009).
26. Stover E, Nightingale E. The breaking of bodies and minds. Washington DC: American Association for the Advancement of Science, 1985.
27. British Medical Association. Medicine betrayed. London: Zed Books, 1992.
28. Rasmussen OV. Medical aspects of torture. *Dan Med Bull* 1990;37(suppl 1):1-88.
29. Miles SH. Doctors' complicity with torture: it's time for sanctions. *BMJ* 2008;337:a1088.
30. Genefke IK. Perspective on the present and the future. *J Med Eth* 1991;17:11-2.
31. British Medical Association. Recommendations from the medical profession and human rights: handbook for a changing agenda. www.bma.org.uk/health_promotion_ethics/human_rights/Med-ProfhumanRightsRecommendations.jsp#Torture (September 7 2006).
32. Miles SH. Medical ethics and torture: revising the Declaration of Tokyo. *Lancet* 2009;373:344-8.
33. Vesti P, Helweg-Larsen K, Kastrup M. Preventing the involvement of physicians in torture. In: Jaranson JM, Popkin MK, eds. *Caring for victims of tortures*. Washington DC: American Psychiatric Press, 1998:185-99.
34. California Senate 19. Health professionals: torture. www.pac.ca.gov/licensees/resolution.shtml (2008).
35. Espersen O. Statutes of the International Tribunal for Investigation of Torture. *J Med Ethics* 1991;17(suppl):64.

Supporting interventions after exposure to torture

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Abstract

A wide range of reactions as panic, demoralisation, feelings of being insecure and unsafe, hopelessness and any kind of dysfunction dominate after torture. The range of PTSD and other psychiatric disorders can be explained by variations in severity, frequency and duration of traumatic events.

The advanced numbers of refugees and asylum seekers illustrate the need of people after the experience of torture to find a safe place for recovery. The various steps for immediate coping strategy after being tortured are evaluated.

Stressors after torture, as pressure on families, decline of social and economic life, threats, feelings of guilt and shame and health problems due to torture act as reminders for the torture experience.

Coping with exposure to torture starts immediately during the experience. A phase-oriented research, taking into consideration internal and external resources, risk factors and protective factors, as well as pre-trauma status, could help to understand more about the needs torture survivors have after being released from detention.

Key words: torture psychosocial reactions, refugees, coping, prevention, cultural context, resilience

The problem

The atrocious experience of torture is widespread, but there are no global numbers available which document the extent of torture and cruel, inhuman and degrading treatments.¹ Exposure to torture, cruel, inhuman or degrading treatments, not only causes medical needs, but also a broad range of human needs, such as relief from pain, worries about the future, feelings of horror, anxiety, hopelessness, excessive feelings of dehumanization, worries about loved ones, grief, and extreme stress. Exposure activates distress, panic, demoralisation, feelings of being insecure and unsafe, hopelessness and any kind of dysfunction, mainly described in pathological classifications. There is a wide range of psychosocial long-term reactions, which can either be qualified as disorders or imply a high risk to develop disorders such as Posttraumatic Stress Disorder (PTSD), Disorder of Extreme Stress not otherwise specified (DESNOS), somatisation disorder, depression, panic disorder, suicidal ideation, alienation and persisting medical problems.² Being released after exposure to torture can prolong these problems, depending highly on the surroundings of a survivor. There are additional traumatizing factors (displacement, refuge, ongoing danger of being detained) and factors enhancing coping skills (supportive environment, social acknowledg-

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ment of being a torture survivor, medical and psychosocial support systems ...).

Psychosocial interventions could raise resilience and recovery of individuals and communities. The article tries to identify research questions and related ideas for clinical and psychosocial management of situations where treatment is not possible, because a safe and secure environment is not (yet) given.

Definition of trauma after torture

Trauma can be defined by the event itself or via criteria to assess an event as traumatic. Green³ defines criteria like life-threat or threat of bodily integrity, injury, intentional injury, confrontation with unthinkable and unbelievable impacts on human dignity, learning about a traumatic event or the danger of being confronted with it, being guilty of a traumatic event. Events or incidents which can be characterized by one or more of these criteria are traumatic events which produce, at least in the early stage, a traumatic reaction. Each experience of torture or other cruel or inhuman treatment can be characterized by one or more of these criteria as traumatic and can lead to the above mentioned responses. What is missed in this list is loss of loved ones, missing loved ones or friends, being in close relation to primary victims or other victims of torture (secondary traumatization).

The United Nations (UN) also defines torture via criteria.⁴

The victim is exposed to a broad variety of torture methods, nowadays this is mostly to have a psychological impact while at the same time breaking a victim's will and resistance,⁵ thus forcing the acceptance of the torture regime's power.

Torture is subjected fundamentally to social meaning, including to religious and/or political causations. It includes the immoral

act of the perpetrators. This is the dimension which affects mostly survivors and their families and the communities where torture survivors come from.⁶

Development of reactions and description of psychosocial reactions and symptoms

Acute pain, extreme stress, fear, panic, a sense of unreality and shame and often paradox feelings of guilt dominate. The extent of desperation is high. Phenomena of dissociation occur. Sights, sounds, smells and feelings of the event persist as indelible images in the memory. As the immediate stress reaction dissipates, longer-term effects appear. Basic assumptions and beliefs are challenged by the torture acts. Individuals feel vulnerable, damaged, endangered, helpless and hopeless. Grieving for loved ones, grieving for home, for memorabilia are additional factors, which worsen the situation of the survivors, when escaping the country.

Coming back to the family and the community add reactions like alienation, keeping secret about torture and the consequences, feeling stigmatized and being stigmatized to persisting symptoms. Often survivors feel guilty or unworthy for surviving. A wide variety of emotional disturbances is experienced within the weeks following the exposure. Grief, depression, anxiety, guilt, anger, irritability and hostility prevail. Sleep disturbances, nightmares, panic attacks, depression, suicidal ideation and trials of self-medication by alcohol, nicotine and other drugs are additional reactions, which are reported to be common after torture. These reactions are not all of clinical value, but some of them are to be considered as risk-factors for chronic disorders such as PTSD.⁷

Often survivors of torture report peritraumatic dissociations, related to impair-

ment of attention, perception and changes in awareness, together with a feeling of numbness, which helps to comfort pain. Dissociative symptoms persist and can enlarge to amnesia. The massiveness of pain and loss of control provokes feelings of shame and guilt and depersonalisation.

These early reactions underlie a constant process of adoption and assimilation, therefore they are polymorph and labile, and occur in divers “pictures” and react to the ongoing situation.⁸

Psychosocial reactions and symptoms

Psychological torture and cruel, inhuman and degrading treatment mostly have an extremely negative impact on health. Effects, both short-term and long-term, include memory impairment, concentration-incapacity, somatic complaints, hyperarousal, avoidance, irritability, severe depression, nightmares, feelings of shame and humiliation and PTSD.

In epidemiological studies, consequences are complex PTSD, depression, somatisation, anxiety disorders, panic attacks, dissociative disorders, eating disorders, obsessive-compulsive disorders and personality disorders.^{1, 9, 10} Prevalence rates of PTSD and other psychiatric disorders associated with torture vary significantly across refugee studies. Within clinical populations PTSD rates from 69–92% across all patient groups.¹⁰ Hollifield et al¹¹ reviewed refugee mental health literature, noting rates of PTSD ranging from 4% to 86%, with similar variations for depression and anxiety. This range is explained by variations in severity, frequency and duration of traumatic events and methodological limitations. Keller et al¹² add the cultural perspective. Asian patients have the lowest rate of PTSD. Within community samples Basoglu et al¹³ found a life time PTSD rate of 33% in a

sample of political activists and non-activists, both groups being torture survivors.

If the consequences do not meet criteria of a disorder, there are still symptoms: unspecific somatic complaints, changing of consciousness (derealisation, depersonalisation, numbness, amnesia), affective syndromes, and impulse control order (outburst of anger, lacking of anger), changing of perception of the perpetrator (feelings of revenge, inadequate thankfulness, sharing of values one did not share before).

Self-awareness and perception is broken or changed; feelings of being stigmatized, alienated and isolated dominate. Intrusions sometimes are similar to psychotic phenomena, the loss of orientation (time and place), and sensory re-experiencing the torture can occur. This all leads to the picture of illness, but is a survivor of torture ill or mad or somebody who suffers from being betrayed?¹⁴

Data on refugees and asylum seekers

UNHCR defines refugee as an individual recognized under the 1951 Convention relating to the Status of Refugees; its 1967 Protocol; the OAU Convention Governing the Specific Aspects of Refugee Problems in Africa; those recognized in accordance with the UNHCR Statute; individuals granted complementary forms of protection; or those enjoying temporary protection.

Asylum-seekers are individuals whose applications for asylum or refugee status are pending a final decision.¹⁵

In 2007 UNHCR¹⁵ estimates that 25.1 million people were under its care as refugees and internally displaced persons. The number of refugees was around 11.4 million people by the end of 2007. Following the 2007 UNHCR report, the estimated average time it would take for a refugee to become naturalized in Europe is 10 years. This cut-

off period of 10 years was applied to all numbers of industrialized countries.¹⁵

Furthermore UNHCR confirms, that most refugees flee to neighbouring countries, thus they remain within their region of origin. UNHCR estimates, that some 1.6 million refugees (14% out of a total of 11.4 million) live outside their region of origin. Europe hosts 14 per cent of the world's refugee population, and a quarter of all refugees live in North America. However, Pakistan still hosts the largest refugee population (2 million), followed by Syria (1.5 million), Iran (0.96 million) and Germany (579,000).

For 42 per cent of the 31.7 million people of concern to UNHCR, information on age is available. 44 per cent of these are children under the age of 18; 10 per cent are under age of five. Children constitute 27 per cent of the population of asylum seekers, a group which traditionally includes single men, particularly in industrialized countries.

During 2007 a total of 647,200 individuals applied for asylum in 154 countries. 99,200 claims were submitted on appeal or with courts. With 332,400 asylum claims, Europe remained the primary destination for people applying on an individual basis, including applicants who have been unsuccessful in the first instance.

209,000 asylum-seekers were recognized as refugees or give a complementary form of protection, including an estimated 27,800 individuals who initially received a negative decision. In Europe, 44,100 asylum-seekers were recognized as refugees and 49,200 got a complementary form of protection. By the end of the year about 740,000 individuals were still awaiting a decision on their asylum claim. The largest number of undecided cases is in South Africa (171,000). In the United States this number is 84,000. Pending cases in Austria are 38,400, and 34,100 in Germany.

These numbers demonstrate the problem of becoming and being a refugee and they illustrate the need of people after the experience of torture to find a safe place for recovery, as well as the obstacles and borders an individual has to cross after the torture experience. The number of children affected by violent acts and the number of pending asylum claims cases in Europe and the long period to become naturalized as a citizen in Europe is significant. No studies reflect the number of torture survivors within the huge population of refugees all over the world.

Process of coping – recovery from trauma

The process of coping starts immediately after being tortured and can be evaluated as a constant process of adaption to the situation. There are a few steps which almost every torture survivors goes through. The first step is the trial to come back to normal life or getting prepared for refuge. Insecurity about the future still remains prominent; the fear of again becoming a victim of torture persists. When the regime keeps power, victims often chose refuge in a safe country. They then have to undergo the process of emigration as a second step, changing culture and language, missing their families, loosing their social background, their homes and incomes, their professional status. They are also confronted with a debate about misuse of asylum which is on going in Europe. Applying for asylum or any other protective status is the third step. Applicants for asylum are confronted with a poor social status; most of them live in camps, are not allowed to work and have to undergo a procedure of investigation and after having gotten asylum, they have to build their lives. As fourth step refugees have to adapt to the new society, they integrate and get integrated. Within this process, factors of risk and protective ca-

pability are interdependent with the coping process of the torture experience.

Keilson's concept of sequential traumatization¹⁶ could be helpful to understand this process. He analyzed the traumatizing process of Jewish children, hidden during World War II in the Netherlands.

In his model phase three comprises everything after liberation and the end of the direct impact of the atrocious experience. This concept helps to understand the importance of phase three under the light of prevention, since terror and torture do not seem to be disappearing from the world.

Following the findings of Keilson phase three comprises risk factors or protective resources and factors for the development of the psychological reaction. Risk factors are the threat of being captured and tortured again, ongoing terror e.g. visits from police, threats to the family or friends, escape to another country, asylum procedures.¹⁷ This enhances and prolongs feelings of helplessness and incapacitation. Protective factors could be finding a safe place, disclosure, acknowledgement of being a victim of a terror regime, social support and adequate treatment. In a study about the long-term mental health effects of mandatory detention and subsequent protection on refugees, Steel et al.¹⁸ applied a multi-level model, that revealed that past immigration detention and ongoing temporary protection each contributed independently to the risk of ongoing PTSD, depression and mental health-related disability. Longer detention was associated with more severe mental disturbances, persisting for an average of three years after release.

Risk factors and resources – the individual's context

The survivor's own context, his or her life history, current life situation are relevant

contexts to assess their ability to cope.¹⁹ Prior life events and their resolution serve as background for assessing current adversity. Life situations include both recent life events and the specific details of the traumatic exposure.

Trauma engages survivors' need for attachment. It is of high value to consider the need of social connectedness and the need for being in contact with the social network as the lack of social contact and being in touch with family and friends could do a greater harm than the torture experience itself.^{13,17}

Risk and protective factors shortly after torture experience

The additional stressors after torture, like pressure on families, no contact with the family, decline of social and economic life, are to be perceived as important predictors for the outcome of mental health and psychological disturbances.²⁰ Ongoing threats, feelings of guilt and shame as well as keeping secret about the torture experience enhance the risk of developing psychological disorder. Persisting health problems due to torture could be triggers, they could act as daily reminders for the torture experience. Yet the relation remains unclear, when searching for the effects of torture, injuries and major depression.²¹ Still the number of individuals suffering from mental health disorders and bodily disorders after torture remains significant.^{22, 23} Injuries may be considered as indicators for the severity of the exposure to torture. Early medical support could be preventive mental health consequences.

Social environment contains both risk and protective factors. A main social risk factor is the ongoing danger of being detained again. Also negative effects on the family, related to the victim's position after torture is a "secondary risk factor" for pro-

longed psychological disturbances after torture. There is no doubt that societies which use torture have a strong interest in intimidation that affects the social environment of victims and does not provide any means for an individual's recovery.

A protective environment can be characterized by a safe surrounding, societal acknowledgment of torture, caring family members and friends, and support in regaining control over daily life activities. Which coping style helps to make adequate decisions about escaping to exile or staying in the country?

Risk and protective factors during escape

It is a complex process for refugees on escape, mostly combined with a lot of costs and misinformation through carriers. It is a difficult way to enter Europe; it is much more than boarding an airplane. There is no systematic research about the psychological stress factors of escape as most of them stay in the darkness of criminalization and dubious carriers. Most research on torture survivors refer also to other related trauma exposure. There are no clear results yet about the impact of trauma-exposure during the time of escape, whether within prevalent studies or within studies which reflect the etiological components of further exposure to traumatic situations or risk factors.⁹

Risk and protective factors in the host country

The non-use of qualification and abilities, the lack of income, the loss of social status, the missing of support by the community and families are strong risk factors, as our own studies on Bosnian refugees show.²⁴⁻²⁷

Living conditions during the application process for asylum are difficult. Most of the refugees start in camps, condemned to do nothing. They share a room with other refugees, which they did not know before,

they get food, they get small pocket money and they have insurance, but they are not allowed to work and start to build up a future. Most of them are on their own, some of them do not know what is going on with their family and all of them wait for the permission to stay. The number of pending cases remains high, although they have declined by a third since 2002.¹⁵

Araya et al²⁸ investigated internally displaced Ethiopians, focussing on quality of life mediated or moderated by mental distress, social support and living conditions. Living conditions in shelters, like the availability of food and water, sleeping comfort and support from helping organisations are associated with a higher quality of life. Mental distress and trauma were significantly related to poorer quality of life, even after controlling living conditions. Araya et al²⁸ suggest that intervention strategies should include psychosocial help and psychiatric help as well as help to improve the material living conditions, since both were beneficial on their own. Although there were no studies found for Europe, we believe living conditions contribute to the improvement or enhancement of the mental health of tortured refugees in exile.

ECRE (European Council on Refugees and Exiles) evaluated the minimum standards for refugee protection within EU.²⁹ ECRE states that there are five minimum guarantees from which there should never be derogation. The Council of Europe is aware of the psychological sequelae of torture within asylum seekers and introduced a document on how to interview a detainee to document psychological trauma symptoms.³⁰ All asylum applicants undergo an interrogation process in which they have to prove that their lives are in danger if they were to be sent back to the country of their origin and that they followed a legitimate process when

coming to the new country. This process is full of triggers for trauma-reactualization.³¹ There is some evidence that application and interview comprise risk factors; no systematic studies were conducted on the impact of PTSD or other mental health problems during the application procedure.

Applying for asylum comprises the hope of being recognized as somebody who suffers from human rights violations and exposure to torture. Most of the survivors are carriers of symptoms, which are assessed by mental health professionals. These symptoms are not because one is mad or wrong, the symptoms occur because they were overwhelming the abilities to cope with them. A mental health professional assessing the psychological needs, reactions and symptoms could serve as somebody which gives social acknowledgment, saying that symptoms, reactions and needs can be mastered, managed and understood and that they are clearly related to the atrocious experience. However the assessment procedure causes a high level of stress. This is one side of the coin.

The other side can be described as the dark one, because it comprises the perspective of being ill or mad and being acknowledged as a mad victim, which deserves treatment and asylum, and not being acknowledged as somebody who underwent inhuman and human rights violating terror. This may cause anger and sometimes a desire of revenge against the torturers, which again can be qualified as a symptom and can lead again to the recommendation for treatment due to poor mental health. Summerfield¹⁴ delivers evidence for this. He refers to studies e.g. from the Kosovo and from South Africa. He qualifies these studies as seeking to give scientific weight to the notion that the mental health of victims is at risk, if they do not forgive those who hurt

them. Vengeful victims are promoting the cycle of violence, their emotional reactions are perceived as harmful to themselves and dangerous to others. The consequence, the reaction of the victim, should be modified. They are brutalized, not only traumatized, and therefore to recover from being traumatized, treatment against brutalization is necessary. The ethos of acceptance and forgiving relates to the person, not to the society, which committed the crime of torture. More research about revenge, reconciliation and recovery is needed, especially related to cultural frames for the meaning of torture and mental health.

Social environment, social acknowledgment, and cultural context

Kienzler³² discusses the cultural construction and conceptualization of war trauma and PTSD in diverse contexts, stressing the meaning of the social environment for the development of disorder and resilience. Fontana & Rosenheck³³ investigated three cohorts of US-veterans from World War II, Korea and Vietnam. All individuals were registered as treatment seeking veterans. In their study the factor of social acknowledgment has a clear impact on mental health status. Veterans from World War II returned back to the United States as heroes, whereas Veterans from the war in Korea who returned home were the targets of political critiques in the media and the public and then were forgotten warriors in comparison to World War II and Vietnam. Their "poor" performance in the war was cited as evidence of the deterioration of the American spirit. Compared to veterans of World War II and of the Vietnam War, the veterans of the Korean War had greater distress and suicidality. These differences might reflect the greater stigma of mental illnesses in earlier generations, but also might reflect

the greater unpopularity of the Korean War. Although this study investigated veterans of war, former active soldiers, the findings reflect the importance of social acknowledgment for survivors of torture. If they were tortured because of their political activity, they are mostly not acknowledged for their activities; if they were tortured, because they were in the wrong place at the wrong time, they also do not gain any social acknowledgment, as the acknowledgment of victims or political actions is contradictory towards a regime which uses torture.

Maercker & Müller³⁴ defined social acknowledgment as a victim's experience of positive reactions from society that show appreciations for the victim's unique state and acknowledge the victim's current difficult situation. "Social" includes significant persons (e.g. local authorities, clergy), groups (e.g. at the workplace or fellow citizens) and impersonal expression of opinions (e.g. media). They define the positive and the negative case. In the positive case, social acknowledgment includes the unconditional support to the survivor. In the negative case, survivors experience a broad range of negative feedback including ignorance, rejection or being blamed for becoming a victim. Most survivors of torture who are refugees are rejected and perceived as suspicious objects. This is a social condition, that causes trauma survivors to feel unsupported, misunderstood, or alienated from their surrounding, when they are seeking social support, which is especially true for torture survivors in the asylum procedure. The findings of Maercker & Müller³⁴ on political prisoners in the GDR (German Democratic Republic) and in victims of crime, support the relation between social acknowledgment and symptoms.

Resilience

The construct of resilience derives from studies on bereaved individuals, transformed to survivors of single traumatization. There is a growing body of evidence, that most adults are resilient towards potentially traumatizing exposure. Bonanno et al³⁵ examined resilience in a New York sample exposed to the attacks of 9/11, stressing the relation of resilience and sociocontextual factors. Resilience in adults is the ability to maintain relatively stable, healthy levels of psychological and physical functioning, when being exposed to an isolated and potentially highly disruptive event such as the death of a close person or a violent life-threatening situation. Recovery describes observable elevations of symptoms, returning to baseline after several months. Resilient people may experience some dysregulation and irritation in their emotional and physical well-being, but the reactions remain relatively brief and do not impact the level of functioning significantly. Resilience in children and adults is related to protective factors, mostly person-centred variables, such as hardiness or self-enhancement, which predict resilience.³⁶ External variables such as social and material resources and additional life stress for a better understanding of resilience.³⁵ Resilience becomes less likely the more prior exposure to trauma was experienced and the less individuals profit from good health prior to exposure. Besides demographic variables (gender, age, race-ethnicity, education), resilience was predicted by the absence of depression and substance abuse, social support, and fewer chronic diseases and less impact of 9/11 and fewer recent life stressors, fewer past prior traumatic events and not having experienced additional traumatic events since 9/11.

Most of the torture survivors suffer from a lack of social support, have a history of pain, ongoing life stressors, feel depressive,

and experience prolonged traumatic exposure, due the situation of being an unprotected refugee. Nevertheless “survivors of torture can teach us a great deal about courage and resilience”.³⁷

It can be stated that variables related to resilience within the group of tortured survivors are hardly researched, although resilient survivors (maintaining an astonishing level of psychological and physical functioning in adverse living conditions) are well known in shelter camps, counselling institutions or other helping organisations.

Prevention – research questions

Reviewing the body of literature about survivors of torture under the perspective of support in order to prevent a worsening psychological development, the following topics for further research arise.

First of all, does the definition of torture as given by the UN, fulfil criteria to do psychological research? Torture itself is changing from a bodily oriented atrocity towards a more psychological act, which leaves less scares and injuries. Also the actors change – torture is more and more provided by non-state agents. Researchers should be careful to be clear about the definition of torture they are using when studying individuals who have survived torture, especially if the purpose of a study is the differentiation in the psychological sequelae of short-term, single traumas, long term trauma, and multiple traumas related to torture-experience.

Coping with exposure to torture starts immediately during the experience. What are coping strategies during and after the exposure, which help most to overcome the procedure? A phase-oriented research, taking into consideration internal and external resources, risk factors and protective factors, as well as pre-trauma status, could help to understand more about the needs torture

survivors have after being released from detention.

Beginning with the immediate phase after detention, the re-integration in the family, factors which are related with the decision to escape or to stay investigate the impact of social acknowledgment, further emotions and their influence on the decision, such as fear of further danger or hope for safety and security and material resources (e.g. access to medical services, working possibilities, further conditions of living). What are good predictors for resilience in this phase? Which factors predict the onset of PTSD or other mental health problems?

The decision to leave or to escape can be considered as a starting point for the next phase within a model of coping with torture. When leaving the country little is known about the stress factors of escape, the reception in the receiving countries and the needs of the refugees. Which internal and external resources help to cope with adversity deriving from torture and escape? How relevant as predictors for mental health are reactions such as alienation, the feeling of isolation, the loss of cultural orientation, perceiving lack or presence of social acknowledgment? Which resources in the receiving countries are needed, what are helpful conditions of living (e.g. material resources, access to medical and/or psychological support) for quality of life and what could we learn for the mitigation of PTSD or other disorders? How do feelings of guilt, shame, anger, revenge influence possible PTSD and the recovery from it? Is there social suffering additionally to the suffering from torture? How could it be defined? Could it be useful as a predicting factor for mental health problems, especially PTSD? How is social support perceived, to whom individuals get connected when living as a single foreigner in exile? Do coping styles, which predict

resilience in bereaved individuals, also help survivors of torture (e.g. self-enhancement, distraction, having been in good health prior to traumatisation)?

Once asylum is obtained, research could focus on recovery. Feelings of revenge and the need to forgive the torturer are considered as main contributing factors for recovery. Summerfield¹⁴ is questioning these findings by relating them to the western medical model of PTSD. A first step of recovery could be to accept feelings of anger and a need for revenge or for justice towards the regime of terror as the assumptions about the world are challenged deeply by the experience. Torture experience also creates a moral vulnerability, as principles such as “do no harm to others” or “my world is a safe place” are shattered. Is it the duty of the survivor to moderate these feelings? Is it the duty of the environment to moderate their feelings towards acceptance of anger and mistrust? Questioning the western tradition of perceiving victims of war and torture could lead to a culturally sensitive approach, focusing on the social meaning of atrocities within the community of survivors.

Is PTSD an adequate out-come variable for such a model and for which time-line? Is it adequate for studies with individuals seeking treatment? Do we have the right measures, when we conduct studies in refugee populations and torture survivors?

What are confounding variables in such research as torture is for the most survivors an act with large implications on further living. It starts a process in an individual's life, which never ends as symptoms and reactions reflect the broad range of human strength and weakness.

Does the PTSD category include cultural sensitivity or is too western oriented so that the psychological consequences are widely overseen in tortured populations,

which arrive in Europe? Could a model include the multi-ethnic nature of torture survivors? How to get access to torture survivors when doing research?

Research has a great responsibility when deciding which variables are relevant for the study of torture and its outcome.

Prevention – some practical considerations

Shared reality

Survivors and helpers are affected by what they see, hear, understand, or have in mind on torture. They share a social context where narrative forms reality. A picture on TV may affect risk perception more than the experienced traumatic situation. Both survivors and helpers are part of that narrative and embedded in the same social context with different positions. This opens an opportunity for intuitive understanding, empathy and connectedness. It can also overwhelm helpers and reduce their efficiency when positions and possibilities to influence are not kept clear. The helper's position should reflect its influence to foster empowerment and self help capacity, but it must not share the powerless position of most torture survivors in exile. Helpers are endangered to trap into (counter) transference, when sharing reality with their subjects of help.

Elements of psychosocial support

There is always something to do in order to help distressed survivors. When little can be done to reduce the main stressor (as in the case of torture experience), reducing survivors' loneliness could be a means to mitigate the reactions. When information about the development of asylum or acknowledgment as a victim, or on processes of social justice (from reconciliation commissions) is lacking, information can be provided and the

feeling of loss of control can be reduced by this. When loss of economic resources is the problem, a possibility of work could be raised. When a lack of cultural bonding is a stressor, the bonding could be created. When the main distress is connected with having no structure for the day or having lost a private space, structure can be given and privacy could be created. When pain and injury are main stress variables, medical treatment is needed.

When the asylum procedure causes stress, torture survivors can be prepared and interviewers can learn about the behaviour of torture survivors. It is the duty of the interviewer to question the evidence for asylum. Memory disturbances of traumatized survivors³¹ are challenged by the legal procedure which also includes the question: Is the applicant telling the truth? The mismatch of disturbed memories and truth searching triggers traumatic stress; inconsistent evidence is often regarded as intent to deceive.³¹ Teaching interviewers about autobiographic representation with episodic features and other trauma specific memory performances could ease the stress situation for both parties in the process.

The concepts of buddy-work and peer-support for unaccompanied minors could be helpful to empower torture survivors. Well trained buddies take a parental role for minors and buffer tertiary stress by helping with homework from school, applying for work, or provide leisure activities together with their families. They also serve as experts and teachers for the new culture.³⁸

Hence much can be done before, and often instead of, treatment interventions. Professionals, accordingly, may find themselves in situations where being a therapist is not the required skill, and therefore they should accept other roles.

The aims of interventions based on psy-

chosocial stress management in the aftercare for torture survivors are: learn about new tasks and start to perform them, find interpersonal interactions, and although mistrust is high, learn to control emotion and to live with symptoms of intrusion and dissociation and regain a small extent of self-esteem.

Psychosocial stress management includes reducing the stressors, finding and optimizing resources and managing survivors' reactions. Stress management encompasses real and perceived elements of this triad. It applies to individuals and groups. Its outcome is better judged by evaluating the resulting improvement in coping.

Interventions in the aftermath of having been exposed to torture might include stress management and treatment of traumatic responses. Stress management involves all the steps to reduce the intensity of environmental demands, enrich resources and support adaptive responses. It is a generic approach, valid across traumatic situations. Trauma theory adds the extent to which the specific individuals are confronted with a broken life, loss, major change and/or traumatic challenge. Trauma therapy should specifically address the processing of incongruous experiences.

Trauma changes survivors forever. Some traumatic situations confront survivors with evil, sends them beyond the boundaries of civilization and evokes questions that have no answers. Still, it is the decision of the survivor to become a patient or to go on with life, even if symptoms are present. Providing help to encourage self-help could be a first step to find one's treatment.

Conclusion

If we consider the needs of people as symptoms, treatment and care will be delivered.

If we consider the needs as normal reactions, which are overwhelming and exhaust-

ing, where individuals do not have every day routine in coping with reactions and events, one will give support to affected people.

Psychosocial interventions (support, stress management and some treatment) thus do not aim to prevent PTSD. This could be a consequence, but is not a target. Interventions target the individual's, a family's and/or a community's skills to cope better with the consequences of torture by mitigating symptoms in order to regain self help capacities to master the situation.

Torture is a worldwide problem that demands worldwide attention from psychosocial experts, both in practice and research. Great advances have been made within the last 20 years, but a lot of questions are still raised, yet not answered. Torture does not just destroy the life of the survivor and its family; it destroys entire societies. Further research could also serve as a strong argument for more democracy and human rights.

References

- Birck A. Politische Verfolgung und Folter – Folgen und Behandlungsansätze. In: Friedmann A, Hofmann P, Lueger-Schuster B et al, eds. *Psychotrauma. Die Posttraumatische Belastungsstörung*. Vienna, New York: Springer, 2004:159-70.
- Silove D. The psychological effects of torture, mass human rights violations, and refugee trauma: towards an integrated conceptual framework. *J Nerv Ment Dis* 1999;187:200-7.
- Green BL. Defining trauma: terminology and generic stressor dimensions. *J Appl Soc Psychol* 1990;20:1632-43.
- Convention against torture and other cruel, inhuman or degrading treatment or punishment. United Nations, 1984.
- Ramsay R, Gorst-Unsworth C, Turner S. Psychiatric morbidity in survivors of organised state violence including torture. *Br J Psychiatry* 1993;162:55-9.
- Summerfield D. Conflict and health: war and mental health: a brief overview. *BMJ* 2000;321:232-5.
- Medical evidence of torture by US personnel and its impacts. *Physicians for Human Rights*, 2008.
- Shalev AY, Ursano RJ. Mapping the multidimensional picture of acute responses to traumatic stress. In: Orner R, Schnyder U, eds. *Reconstructing early intervention after trauma*. Oxford University Press, 2003.
- Johnson H, Thompson A. The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: a review. *Clinical Psychological Review* 2008;28:36-47.
- Moisander PA, Edston E. Torture and its sequel – a comparison between victims from six countries. *Forensic Sci Int* 2003;137:133-40.
- Hollifield M, Warner TD, Lian N et al. Measuring trauma and health status in refugees: a critical review. *JAMA* 2002;288:611-21.
- Keller A, Lhewa D, Rosenfeld B et al. Traumatic experiences and psychological distress in an urban refugee population. *J Nerv Ment Dis* 2006;194:188-94.
- Basoglu M, Paker M, Ozmen E et al. Factors related to long-term traumatic stress responses in survivors of torture in Turkey. *JAMA* 1994;272:357-63.
- Summerfield D. Effects of war: moral knowledge, revenge, reconciliation, and medicalised concepts of "recovery". *BMJ* 2002;325:1105-7.
- 2007 global trends: refugees, asylum-seekers, returnees, internally displaced and stateless persons. UNHCR, 2008. www.unhcr.org/statistics (October 30 2008).
- Keilson H. *Sequentielle Traumatisierung bei Kindern*. Stuttgart: Encke, 1979.
- Gorst-Unsworth C, Goldenberg E. Psychological sequelae of torture and organised violence suffered by refugees from Iraq. Trauma-related factors compared with social factors in exile. *Br J Psychiatry* 1998;172:90-4.
- Steel Z, Silove D, Brooks R et al. Impact of immigration, detention and temporary protection on the mental health of refugees. *Br J Psychiatry* 2006;188:58-64.
- Steel Z, Silove D, Bird K et al. Pathways from war trauma to posttraumatic stress symptoms among Tamil asylum seekers, refugees and immigrants. *J Trauma Stress* 1999;12:421-35.
- Lie B. A 3-year follow-up study of psychosocial functioning and general symptoms in settled refugees. *Acta Psychiatr Scand* 2002;106:415-25.
- Rasmussen A, Rosenfeld B, Reeves K et al. The effects of torture-related injuries on long-term psychological distress in a Punjabi Sikh sample. *J Abnorm Psychol* 2007;116:734-40.
- Mollica RF, Wyshak G, Lavelle J. The psychosocial impact of war trauma and torture

- on Southeast Asian refugees. *Am J Psychiatry* 1987;144:1567-72.
23. Forrest D. The physical after-effects of torture. *Forensic Sci Int* 1995;76:77-84.
 24. De Jong J, Komproe IH, Ommeren MV et al. Lifetime events and posttraumatic stress-disorder in four postconflict settings. *JAMA* 2001;286:555-62.
 25. Hondius AJK, Van Willigen LHM, Kleijn WC et al. Health problems among Latin-American and Middle-Eastern refugees in the Netherlands: relation with violence exposure and ongoing psychosocial strain. *J Trauma Stress* 2000;13:619-34.
 26. Lueger-Schuster B, ed. *Leben im Transit*. Wien: Wiener Universitätsverlag, 1996.
 27. Silove D, Sinnerbrink I, Field A et al. Anxiety, depression and PTSD in asylum-seekers: associations with premigration trauma and post-migration stressors. *Br J Psychiatry* 1997;170:351-7.
 28. Araya M, Chotai J, Komproe IH et al. Effect of trauma on quality of life as mediated by mental distress and moderated by coping and social support among postconflict displaced Ethiopians. *Qual Life Res* 2007;16:915-27.
 29. Broken promises – forgotten principles. An ECRE evaluation of the development of EU minimum standards for refugee protection. ECRE, 2004. www.ecre.org (October 30 2008).
 30. Psychological effects of trauma. How to conduct an interview with a detainee to document psychological trauma symptoms? Strasbourg: Council of Europe, 2002.
 31. Volbert R. *Beurteilung von Aussagen über Traumata. Erinnerung und ihre psychologische Bewertung*. Bern: Hans Huber, 2004.
 32. Kienzler H. Debating war-trauma and post-traumatic stress disorder (PTSD) in an interdisciplinary arena. *Soc Sci Med* 2008;67:218-27.
 33. Fontana A, Rosenheck R. Traumatic war stressors and psychiatric symptoms among World War II, Korean, and Vietnam war veterans. *Psychol Aging* 1994;9:27-33.
 34. Maercker A, Müller J. Social acknowledgment as a victim or survivor: a scale to measure a recovery factor of PTSD. *Journal of Traumatic Stress Studies* 2004;17:345-51.
 35. Bonanno GA, Galea S, Bucchiarelli, A et al. What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Counselling and Clinical Psychology* 2007;75:671-82.
 36. Bonanno GA. Loss, trauma and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *Am Psychol* 2004;59:20-8.
 37. Keller AS. Caring and advocating for victims of torture. *Lancet* 2002;360(suppl):55-6.
 38. Lueger-Schuster B. EPIMA, die Evaluation. Praxisorientierte Forschung der Universität Wien im Rahmen der EPIMA. In: EPIMA, eds. *Integration ohne Arbeit? Erfahrungen aus Epima. Einem Projekt für Junge AsylwerberInnen*. Wien: Asylkoordination, 2005:90-6.

Photographic documentation, a practical guide for non professional forensic photography

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Abstract

Forensic photography is essential for documentation of evidence of torture. Consent of the alleged victim should be sought in all cases. The article gives information about when and how to take pictures of what as well as image authentication, audit trail, storage, faulty pictures and the kind of camera to use.

Key words: Istanbul Protocol, forensic photography, torture, camera technology, photo identification

Paragraph 106 of the Istanbul protocol¹ stipulates that during the procedures of a torture investigation “colour photographs should be taken of the injuries of persons alleging that they have been tortured, of the premises where torture has allegedly occurred (interior and exterior) and of any physical evidence found there”.

The photographic documentation of evidence for presentation of an argument in a court of law is forensic photography. Forensic photography is essential for documentation of physical evidence and it is essential that the pictures are taken and handled in a correct way.

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Consent

Specific consent of the alleged victim should be obtained before taking any photographs. The consent must be valid. A valid consent is a consent that is given freely, without fear, duress, or fraud and that is appropriately informed.

The alleged victim needs to know and understand what sort of pictures will be taken and for what purposes. Even if the photographs are not taken on the occasion of a medico-legal examination, for instance if the pictures are taken in a rehabilitation centre for torture survivors, the patient needs to know that the pictures may be revealed in subsequent court proceedings. Equally, in all cases, the patient needs to know that the pictures may be used for teaching purposes or for publication in medical journals.

The issue of anonymity should be discussed and if possible to guarantee it or not.

The patient needs to be competent to receive information about photographic documentation and able to weigh that information and come to a rational decision.

Photographic documentation: when?

The timing of photographic documentation depends on how soon after the alleged torture you see the victim.

If the alleged torture happened recently, photographs should be taken as soon as

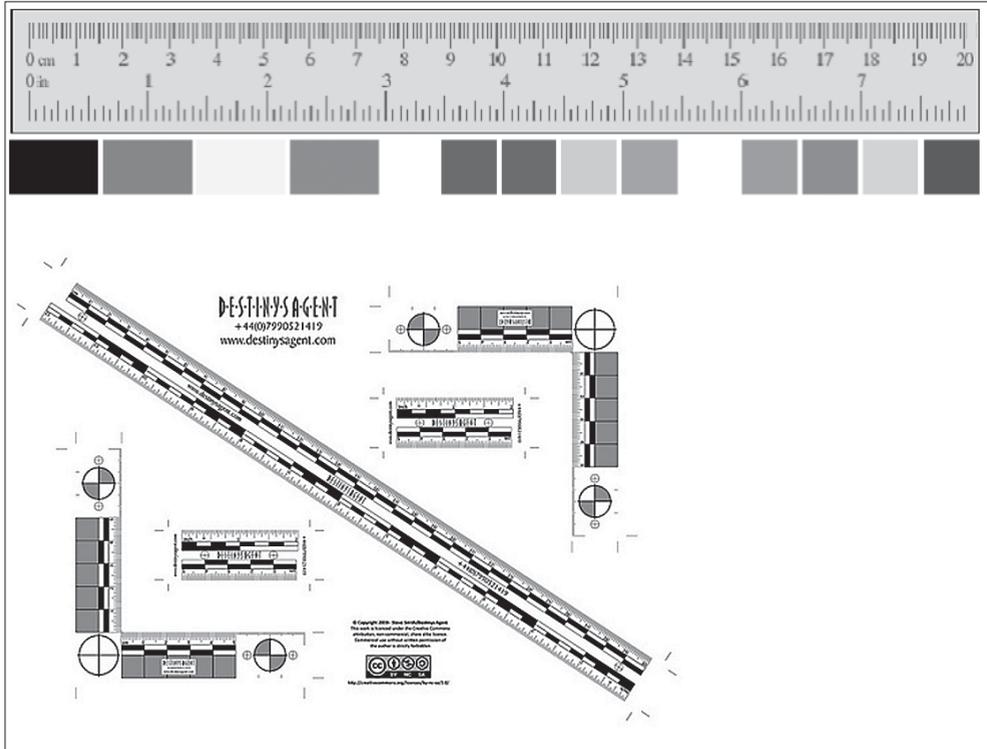


Figure 1. Example of forensic rulers.

possible. It is also advised to take pictures during the follow up examinations of recent torture allegations in order to show the changes of the physical findings. Keep in mind that bruises can take hours to appear after trauma.²

If the alleged torture didn't happen recently, there is no time constraint.

Photographic documentation: what?

- It is advised to take close-up photographs of all lesions with serial pictures from different angles of important lesions. A picture of the lesion at a 90 degree angle should always be taken (inexpensive professional marking rulers (Figure 1.) have one or more circles printed which

help to ensure that a picture is taken at a 90 degree angle).

- In addition to close up photos, photographs of the injury from normal distance permitting the viewer to see clearly which part of the body has been injured should be taken. This is to avoid distorting the size or shape of the injury, and to prevent misinterpretation.³
- Broader pictures of the person should be taken, including full length shots as well as head and shoulders shots.
- Photograph all clothing involved if applicable.
- Photograph the premises where torture allegedly happened (inside and outside views) if applicable.

- Photograph the instruments used in the alleged torture if applicable.
- It is important to stress that besides documenting torture-related areas, areas of skin diseases should also be photographed since the occurrence of new skin disease or the aggravation of existing skin condition can be related to physical or psychological trauma following torture.⁴

It is advised to take pictures of the body parts of the alleged victim even when there is no visible sign of trauma in recent torture allegations.

Photographic documentation: how?

- **Light:** If possible pictures should be taken in daylight or with background lighting.
The presence of bright lights or reflective surfaces can produce a wash out of the detail (overexposure) and the injury will become less visible on the photograph. Remember: lighting can be critical to the appearance of some injuries.⁵
- **Background:** taking pictures in a crowded and colourful background must be avoided in order to prevent different colour reflection.
- **Close up pictures:** close up pictures of lesions are taken 10 to 12 inches away or 25 to 30 cm away.
- **Scale of reference (also known as measuring tape or evidence ruler, see Fig. 1.):** first take one picture of the injury in its original condition, then take a second picture with an evidence ruler. When a scale of reference is used, the camera's back should be parallel to the scale and the scale should be parallel to the lesion in order to get a more accurate representation of the lesion. This is *especially significant* for photography of lesions like bite marks or lesions which present specific features of

the object used during torture. "L" shaped rulers are crucial in bite mark analysis.

While using measuring tapes, make sure not to obscure any information present.

- **Date:** It is essential to date the picture. All current cameras have a date feature. It is advised to use a date scale during photography. In some cases, a physician should consider taking a picture of the patient with a recent newspaper as a proof of date.
- Identification of the person photographed.

The identification of the person photographed should appear on every picture either as a full name or a case number. Non identifiable pictures are worthless in court and can only be used for teaching purposes.

Image authentication

The digital processing of images, the potential for image modification and the problem of defining what is an original, make it difficult to establish with ease that an image is authentic. This is a critical step if an image is to be used as evidence. There are two elements to establish authenticity: to have an "audit trail" which records everything that happens to the image from capture to its presentation in court; and/or in the case of digital images, to have a technological solution which brands or "watermarks" the image at the time of capture and can subsequently show it is authentic.⁶

Audit trail: chain of custody or chain of evidence

It is generally believed that digital images are easily manipulated and film images are much less susceptible to manipulation. The facts of the matter are that the first statement is true and the second, is, to a large degree, false⁷. This is why proper procedures are to be followed in all cases.

The Chain of evidence (COE) procedure is a means by which the handling and “journey” of any evidence is clearly documented, and by which its integrity, that is, its origin, history, handling, storage and processing, is assured. There must be an unbroken chain in the continuity of its progress. There must be a “paper trail” which must be able to account for this and which may be subject to and be capable of withstanding scrutiny.

When the sample is stored, it must be possible to demonstrate that it is securely stored, with limited access and with a means by which any one that has access to that sample, may be identified.

- *For conventional photography:* information on production serial number of the roll of the film and original item number of each pose in the roll should be written in relation with each picture captured, as well as the date of the picture, the name of the person who took the picture and the persons who were present during photography. This information should be secured together with the negatives and prints of the photograph.
- *For digital photography:* information on the digital camera, authentic number of each picture file in relation with each pose, name of authentic pictures file on authentic writeable CD or on computer, as well as the date of the picture, size of the picture in bytes (Figure 2.) and the name of the person who took the picture, the name of the persons who were present during photography and the name of the person who downloaded the authentic pictures from the camera on authentic writeable CD or on computer should be written. The images should be transferred as soon as possible after capture to a WORM (Write Once Read Many) medium such as a CD-R.

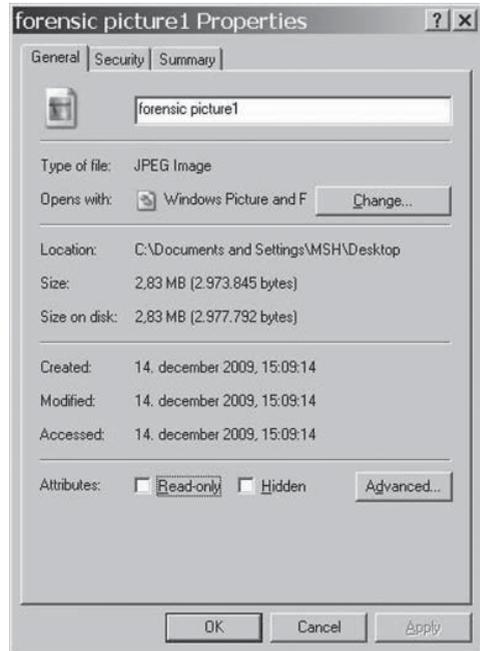


Figure 2. The size of this picture should be recorded as 2.973.845 bytes.

Watermarks provide an extra level of security to an image in addition to an audit trail if they are added at source as the image is being captured by the camera. With a conventional image the watermark (eg. an identifying code or logo) would need to be visible in the scene and may thus obscure other vital information. In a digital image it is possible to hide the watermark within the image data with a form of encryption: although the watermark can be present in all parts of the image (down to pixel scale), the image looks normal and the watermark can be viewed only with the appropriate decryption key. It would also be possible to *encrypt* the whole image so that it is meaningless to anyone viewing it without the appropriate equipment and decryption key.

Digital signature: Digital signatures can be used for authenticating messages and documents sent electronically and, equally, could be adapted for authenticating images. The American Bar Association⁸ describes digital signatures as using public key cryptography and a “hash function” derived from the message itself. The hash function is an algorithm created from enough of the message data to ensure that it could only be created from those data. The message and the hash function are then encrypted with the sender's private encryption key to make a digital signature which is unique. The receiver decodes the message with a related version of the encryption key previously given to the intended recipient by the sender (or held by a trusted third party). The message is verified by computing the hash function again and comparing it with the original.⁹

Storage

- *Conventional photography:* Negatives of the films should never be exposed to heat or light which may decay the films. It should always be remembered that because of long lasting trials sometimes these pictures may be needed after several years. Negatives and photographs should be kept in a locked cupboard with limited access. Each time someone has access to the photographs, the name of the person, date, time and purpose of the access should be recorded.
- *Digital photography:* The images should be transferred as soon as possible after capture to a WORM medium such as a CD-R. Do at least two copies of the CD-R. Keep the CD's in a locked cupboard with limited access. Each time someone has access to the photographs, the name of the person, date, time and purpose of the access should

be recorded. If the digital images are kept in a computer, the computer must be secure, with limited user access and advanced password protection. It is also possible to use a special hard disk for the only purpose of storing pictures. Nothing must be extracted from the original image and nothing must be inserted onto the original image.

If the photos are not processed immediately, place the flashcard in an envelope with the identification details of the case and signature of the photographer. Seal the envelope. The envelope should then be logged in a book and placed in a locked cupboard with limited access.

If the photos are processed immediately, transfer the content of the flash card on a computer, burn a WORM CD or store the images on a password protected memory key. It is best practice to create two case folders, one on the hard drive of the computer, one on a zip cartridge. Then two folders should be created and inserted into each case folder – one labeled “raw images” and the other labeled “processed images”. At this point, the right click copy tool should be used to duplicate the contents of the flash card into both of the “raw images folders.” These folders should never be opened until after the images have been permanently duplicated later on. The content of the flash card should be duplicated a second time and placed in the “processed image folder” in the computer hard drive and the zip card. Check if the images in the “processed image folder” are visible and if yes, remove the Zip cartridge from the computer and secure it.

Erase the flash card so that you can reuse it.

When two password protected zip drives are filled, the content should be transferred

to a WORM CD. The cases that have been recorded on a particular CD should be listed along with the CD serial number.¹⁰

Enter in the logbook which CD holds the content of the flashcard.

Open a few images on the CD to make sure that the file is readable. Once it is ascertained that the images on the CD are readable, the zip drive should be reformatted and made available for reuse.

Faulty pictures

It is proper to discard images that are clearly of no value because of photographic technique or errors.¹¹ However, it is important to document that some images have been discarded and the reasons why.

Photography in rehabilitation centres and prison

Establishing a medical photography unit with professionals and developing standard operating procedures for photography is essential for the medical units of prisons and for the rehabilitation centres dealing with the survivors of torture. Support from forensic experts may be needed while establishing these standard operating procedures for the photography unit.

The professionals using this unit should have training on forensic photography. Whether having adequate staff/unit for photography or not, medical doctors in contact with prisoners or torture victims should have knowledge on the basics of photography.

If there is no existing photography unit, the prison doctor or the medical doctor of the rehabilitation centre should make an effort to create a space favourable to photography in the examination room or in a facility close to examination room.

What kind of camera should be chosen for photography documentation?

Any digital camera with four mega pixel capacity should be quite enough for documentation purposes. Metadata for a digital photograph typically includes the date and time at which it was created and details of the camera settings (such as focal length, aperture, exposure). Many digital cameras record metadata in their digital images, in formats like exchangeable image file format (EXIF) or JPEG. Some cameras can automatically include extended metadata such as the location the picture was taken (e.g., from a GPS). Most image editing software includes at least some metadata in the digital image, and can include content about the image's provenance and licensing.¹

There are several different technologies and factors, for example with wide angle or normal lenses: image sensor size, focal length etc. You may get good pictures with different combinations of these factors.

Cameras with wide angle lenses are cheaper than normal lenses. With normal lenses camera can cover a larger area and a wider distance range with clear image, you can get closer to the object or you can take good quality picture from a long distance. With wide angles you can cover a smaller area with clear image.

There are also other factors like flash light, speed, auto focus, image capacity, white balance, image processor, exposure control etc. Each factor increases the quality of working conditions.

In short, the camera should have a minimum of four mega pixel or more of picture size.

You can take a trial picture of a printed text with eight point font size from 20 cm distance. If the text can be readable on the picture of the text then it is a good camera for documentation purposes.

If there are enough funds for photographic equipment, cameras with normal lenses are always recommended.

Can we take pictures with cell phones?

It should not be forgotten that the image quality of the cell phones pictures is not really sufficient for judicial purposes. The image resolutions or sizes are not good enough to print big pictures. A good digital picture should be more than four mega pixels. Also, as the mobile phone lens has a wide angle, the images can be distorted on the sides.

What to do if the applicant refuses to give a picture?

If the examination is performed through the request of a prosecutor as part of a crime investigation because of “torture allegation” then it is part of a proper documentation to take photographs. The physician should explain this and the importance of photography to the complainant. If the complainant refuses to allow the physician to take pictures, then the physician should get a written and signed refusal from the complainant.

If the examination is performed independently from a judicial process then the physician should clearly explain the importance of photography and should take note of the person’s refusal.

References

1. Istanbul Protocol Manual on the effective investigation and documentation of torture and other cruel, inhuman, or degrading treatment or punishment professional training series number 8/Rev.1. New York and Geneva: United Nations, 2004:135.
2. Dalton M. Forensic gynaecology. RCOG Press, 2004.
3. Rediscker DR. The practical methodology of forensic photography. 2nd ed. CRC Press, 2001:189.
4. Danielsen L, Rasmussen V. Dermatological findings after alleged torture. *Torture* 2006;16:108-27.
5. Rediscker DR. The practical methodology of forensic photography. 2nd ed. CRC Press, 2001:183.
6. www.publications.parliament.uk/pa/ld199798/ld-select/ldsctech/064v/st0504.htm
7. Blitzer HL, Jacobia J. Forensic digital imaging and photography. Academic Press, 2007:201.
8. Digital Signature Guidelines. www.abanet.org/scitech/ec/isc.
9. www.publications.parliament.uk/pa/ld199798/ld-select/ldsctech/064v/st0504.htm.
10. Blitzer HL, Jacobia J. Forensic digital imaging and photography. Academic Press, 2007:210-9.
11. Blitzer HL, Jacobia J. Forensic digital imaging and photography. Academic Press, 2007:206.

CONSENT FORM FOR PHOTOGRAPHS

I consent to the taking of the photographs indicated below.

I understand that these will be used:

- 1.*As part of the medical record of my examination, and that they may form part of a report based on that examination and may be revealed in subsequent court proceedings.
- 2.*For lectures and teaching purposes.
- 3.*For publication in medical journals, textbooks or similar publications. In which case I understand that:
 - (a) The material will be published without my name attached and every attempt will be made to ensure my anonymity. I understand however, that complete anonymity cannot be guaranteed. It is possible that somebody somewhere-perhaps for example somebody who looked after me if I was in hospital or a relative may identify me;
 - (b) the material may be published in medical journals worldwide, which are distributed mainly to doctors but are seen by many non-doctors, including journalists;
 - (c) the material may also be placed on a worldwide web site;
 - (d) medical book publishers may also use the material;
 - (e) the material will not be used for advertising or packaging.

*) Delete as appropriate

Subject of article of photograph

Signed

Date

It is good practice to advise the patient that consent to use photographic material for research, peer review or teaching is for life and not limited by time, as seeking renewed consent when necessary is almost impossible for an FME (Forensic Medical Examiner). Photographic images taken during the course of an investigation should never be used for any purpose other than evidential while the case remains *sub judice*.

Example of consent form for photographs (from Good Practice Guidelines for Forensic Medical Examiners. Metropolitan Police April 2007).

Sir,

We write to report two cases of the use of snakes in psychological torture in East Africa. The use of snakes in torture is not new and contemporary evidence exists from Asia as early as 1673.¹ Although a modern symbol of the medical profession,² snakes have always been associated with fear and suffering: for example, in 1813 the poet Shelley referred to the “torture snakes of hell”.³ One reason for this may lie in human evolution as there is evidence that humans and other primates have evolved special systems to detect and fear snakes.⁴⁻⁶ From the second half of the twentieth century there are accounts of snakes being employed in torture in South America,^{7,8} Asia⁹ and South Africa.¹⁰ More recently a python was used in a racist attack in England.¹¹

Reports of torture using snakes in the twenty first century are absent in the medical literature. In 2009 we examined two patients from the same East African country who reported the use of snakes as a means of psychological torture. The first patient was detained in a military establishment for one week, during which he was interrogated, electrocuted and beaten unconscious. The scars on his body were consistent with the account of the alleged torture. This took place in a specially equipped chamber. An unusual feature of this room was a large “tank” inside which the patient could see

live snakes. He could not identify the species of snake, but clearly saw a number of specimens of different sizes. This suggests either a range of species or of ages. When the client was unable to provide the information his torturers sought they threatened to push him inside this tank to be bitten. In this case the physical threat was not carried out, however the patient was very intimidated.

The second case was similar but from a different military establishment within the same country. In addition, the second patient was threatened with being pushed into a caged pool containing crocodiles. These are the only recent specific accounts of the use of reptiles in institutional torture that we have been able to identify. Discussion with colleagues working with torture victims did not identify other cases. The use of snakes in these establishments may have been chosen for a number of reasons. First, although at least one East African tribal group does practise ritual dancing with certain non-venomous species,¹² Africans are particularly fearful of snakes (sometimes exacerbated by associated superstitious beliefs).^{13,14} Second, snake bites are common in Africa¹⁵ and this renders torture difficult to verify. In addition, our evidence suggests that techniques are being shared between establishments within the same country.

Thus, we conclude that methods using

reptiles may pose new challenges to physicians working with victims to document torture.

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15. Kasturiratne A, Wickremasinghe AR, De Silva N et al. The global burden of snakebite: a literature analysis and modelling based on regional estimates of envenoming and deaths. *PLoS Med* 2008;5(11):e218.

References

1. Scott GR. History of torture throughout the ages. London: T Werner Laurie, 1940.
2. Ghimire LV. Snakes and staffs. *Student BMJ* 2005;13:221-64.
3. Shelley PB. Queen Mab. London: PB Shelley, 1813.
4. Isbell LA. Snakes as agents of evolutionary change in primate brains. *Journal of Human Evolution* 2006;51(1):1-35.
5. Ohman A, Carlsson K, Lundkvist D et al. On the unconscious subcortical origin of fear. *Physiol Behav* 2007;92(1).
6. Rakison DH. Does women's greater fear of snakes and spiders originate in infancy? *Evolution and Human Behavior* 2009;30:438-44.
7. Archdiocese of Sao Paulo. Torture in Brazil. A shocking report on the pervasive use of torture by Brazilian military governments, 1964-1979. Austin: University of Texas Press, 1998.
8. Zimbardo P. The lucifer effect. How good people turn evil. London: Rider Books, 2007.
9. Vietnam veterans against the war. Winter Soldier Investigations in January 1971 (prisoner of war panel part 1). www2.iath.virginia.edu/sixties/HTML_docs/Resources/Primary/Winter_Soldier/WS_entry.html.
10. Foster DH, Sandler D, Davis DM. Detention, torture and the criminal justice process of South Africa. *International Journal of the Sociology of Law* 1987;15:105-20.
11. BBC News. Gangs use snake in street attack. <http://news.bbc.co.uk/1/hi/england/bristol/8192209.stm> (September 9 2009).
12. Cooper JE, Cooper ME. Veterinary and legal implications of the use of snakes in traditional dancing in East Africa. *British Herpetological Society Bulletin* 1996;55:29-34.
13. Andersson CJ. Lake Ngami or explorations and discoveries during four years' wanderings in the wilds of Southwestern Africa. New York: Harper & Brothers, 1857.
14. Fitzsimmons VFM. A field guide to the snakes of Southern Africa. 2nd ed. London: Collins, 1974.