

The long shadow of war on the health of military personnel

18 February 2015

Nick Wilson



This blog post looks at a recently published study of the lifespan of NZ soldiers who participated in the First World War. It then asks more broadly what is known about the longer term health outcomes for military personnel participating in war – and suggests that such issues need to be considered carefully by governments before participating in foreign military engagements.

The study that a group of us published in a recent December edition of the *British Medical Journal* is detailed here (1). It found that the impact of the First World War (WWI) on participating NZ soldiers was that they typically lost around eight years of life and had an

increased risk of early death in the post-war period. The study considered randomly selected soldiers who embarked on troopships in 1914 (the year the war started), along with a comparison “non-combat” group who departed on troopships in late 1918 but for whom the war ended before they got to the frontlines.

The lifespan of the 1914 group was estimated at 65.9 years, compared to 74.2 years for the non-combat group – an eight year gap. As well as warfare-related injury deaths, other causes of excess death rates included those from chemical weapons and various infectious diseases such as malaria and pandemic influenza.

The study also found that among survivors of the war, the 1914 veterans lived a statistically significant 1.7 years less (72.6 years compared to 74.3 years in the non-combat group). Further analysis of death certificate data suggested that war-related causes such as suicide may have played a role in this difference. Another factor was possibly the high burden of injuries in the survivors, with an estimated 41% of NZ soldiers receiving non-fatal wounds in the war. These injuries are likely to have increased the risk of death in subsequent surgical operations after the war and also death from cardiovascular disease.

While war-related death tolls for combatant nations of WWI are available, this appears (to our knowledge) to be the first study to provide estimates for the war-related life lost per participating soldier and for the veterans where an appropriate comparison group is used.

So what is known about long-term health impacts of combat experience?

For veterans of WWI, the research base is relatively sparse. Various lifespan studies had suboptimal control groups that have made it difficult to draw conclusions e.g., (2,3). However, a US study of those veterans who were exposed to mustard gas (a chemical weapon used in WWI) found that they had increased overall mortality rates (and specifically for pneumonia and tuberculosis) relative to control groups of other veterans (4,5). Likewise, in a similar UK study there were significantly higher mortality rates for veterans exposed to mustard gas compared to the male population of England and Wales (for: all-causes, all cancers and lung cancer) (6). Such findings are consistent with a more up-to-date summary of evidence that mustard gas is carcinogenic (7).

There is now also fairly strong evidence that combat experience is a risk factor for posttraumatic stress disorder (PTSD) in veterans (8). In turn, PTSD is linked to an increased risk of coronary heart disease (e.g., this systematic review (9)) and to an increased risk of suicide (e.g., this systematic review (10)). Another systematic review has reported an increase in injury mortality in combat-zone veterans compared to non-combat zone veterans, especially for motor vehicle crashes (11).

Vietnam War veterans with PTSD have been relatively well studied. Among this group there is evidence for higher “postwar mortality for all-cause, cardiovascular, cancer, and external causes of death (including motor vehicle accidents, accidental poisonings, suicides, homicides, injuries of undetermined intent)” (12). In addition, a review of the health of Canadian, US and Australian veterans has reported evidence for poorer health for a wide range of conditions, including “general health”, “neurological conditions” and cardiovascular disease (13).

Furthermore, being seriously wounded and having a “permanent disability/illness” has also been associated with increased risk of mortality in long-term survivors of the Second World

War (14). Other research on veterans of the Israeli army indicates that those with lower limb amputations have an increased risk of death from cardiovascular disease (15).

Just this year is an issue of *"Epidemiologic Reviews"* that has 13 articles on veteran's health (16). One of the included systematic reviews reported: "our findings indicate that Gulf and Iraq/Afghanistan war veterans are at higher alcohol use disorder risk than nondeployed veterans" (17). Another one of the systematic reviews reported that "the majority of studies suggested a small-to-moderate association between combat exposure and postdeployment physical aggression and violence, with a pooled estimate of the weighted odds ratio = 3.24 (95% CI: 2.75, 3.82), with several studies finding that violence increased with intensity and frequency of exposure to combat traumas" (18). If the latter is a true effect then this is an example of how the damage to veterans can result in wider harm to others in society.

How might governments respond to requests for foreign deployment of their troops?

From a public health perspective – war is disastrous for health, especially for the health of civilians. Indeed, nuclear war could kill billions of people (19) and potentially lead to the collapse of human civilisation. Hence governments with some level of rational policymaking should probably work together to put large resources into diplomatic efforts towards preventing war and especially to eliminating all weapons of mass destruction: nuclear weapons, chemical weapons and bioweapons.

In particular for New Zealand (with some track record of being a good third party arbitrator – e.g., the Bougainville conflict) there might be a good case on efficiency grounds for the country to abandon foreign military engagements entirely and to fully focus on doing a high quality job on diplomatic solutions to preventing and resolving international conflict. NZ could strive to become the "Norway of the Southern Hemisphere" in terms of international efforts at conflict resolution.

But if NZ Governments still decide to respond to overseas conflicts by sending NZ troops – there is also a case for the following:

- Policymakers being well aware that the health burden and financial health costs for veterans could well extend far into the future (i.e., sometimes for the rest of the veterans' lives).
- Ensuring that the troops are as well protected in the field as possible – to minimise the risk of injury and associated health sequelae.
- Ensuring that there are measures in place to *prevent* PTSD (though the evidence base for such interventions is still weak according to one systematic review (20)).
- Ensuring that on their return to NZ, troops have good access to life-long and free highly quality health care – to treat conditions such as PTSD and other injuries.

Collectively such approaches would potentially both reduce long-term health burdens for veterans – and the financial cost burden on the NZ health system.

References

1. Wilson N, Clement C, Summers JA, Bannister J, Harper G: Mortality of first world war military personnel: comparison of two military cohorts. *BMJ* 2014, 349:g7168.

2. Jones E, Vermaas RH, Beech C, Palmer I, Hyams K, Wessely S: Mortality and postcombat disorders: U.K. veterans of the Boer War and World War I. *Military Medicine* 2003, 168(5):414-418.
3. Weiss GH, Caveness WF, Einsiedel-Lechtape H, McNeel ML: Life expectancy and causes of death in a group of head-injured veterans of World War I. *Archives of Neurology* 1982, 39(12):741-743.
4. Beebe GW: Lung cancer in World War I veterans: possible relation to mustard-gas injury and 1918 influenza epidemic. *Journal of the National Cancer Institute* 1960, 25:1231-1252.
5. Norman JE, Jr.: Lung cancer mortality in World War I veterans with mustard-gas injury: 1919-1965. *Journal of the National Cancer Institute* 1975, 54(2):311-317.
6. Case RA, Lea AJ: Mustard gas poisoning, chronic bronchitis, and lung cancer; an investigation into the possibility that poisoning by mustard gas in the 1914-18 war might be a factor in the production of neoplasia. *British Journal of Preventive & Social Medicine* 1955, 9(2):62-72.
7. IARC: A Review of Human Carcinogens: Chemical Agents and Related Occupations. IARC Monographs on the Evaluation of Carcinogenic Risk to Humans. Vol 100F: International Agency for Research on Cancer (IARC). monographs.iarc.fr/ENG/Monographs/vol100F/mono100F-30.pdf; 2012.
8. Barrera TL, Graham DP, Dunn NJ, Teng EJ: Influence of trauma history on panic and posttraumatic stress disorder in returning veterans. *Psychological Services* 2013, 10(2):168-176.
9. Edmondson D, Kronish IM, Shaffer JA, Falzon L, Burg MM: Posttraumatic stress disorder and risk for coronary heart disease: a meta-analytic review. *American Heart Journal* 2013, 166(5):806-814.
10. Pompili M, Sher L, Serafini G, Forte A, Innamorati M, Dominici G, Lester D, Amore M, Girardi P: Posttraumatic stress disorder and suicide risk among veterans: a literature review. *The Journal of Nervous and Mental Disease* 2013, 201(9):802-812.
11. Knapik JJ, Marin RE, Grier TL, Jones BH: A systematic review of post-deployment injury-related mortality among military personnel deployed to conflict zones. *BMC Public Health* 2009, 9:231.
12. Boscarino JA: Posttraumatic stress disorder and mortality among U.S. Army veterans 30 years after military service. *Annals of Epidemiology* 2006, 16(4):248-256.
13. Tansey CM, Raina P, Wolfson C: Veterans' Physical Health. *Epidemiologic Reviews* 2012, [E-publication 13 December].
14. Bramsen I, Deeg DJ, van der Ploeg E, Fransman S: Wartime stressors and mental health symptoms as predictors of late-life mortality in World War II survivors. *Journal of Affective Disorders* 2007, 103(1-3):121-129.
15. Modan M, Peles E, Halkin H, Nitzan H, Azaria M, Gitel S, Dolfin D, Modan B: Increased cardiovascular disease mortality rates in traumatic lower limb amputees. *The American Journal of Cardiology* 1998, 82(10):1242-1247.
16. Galea S: Editorial: veterans' health. *American Journal of Epidemiology* 2015, 181(4):223-224.
17. Kelsall HL, Wijesinghe MS, Creamer MC, McKenzie DP, Forbes AB, Page MJ, Sim MR: Alcohol use and substance use disorders in gulf war, afghanistan, and iraq war veterans compared with nondeployed military personnel. *Epidemiologic Reviews* 2015, 37(1):38-54.
18. MacManus D, Rona R, Dickson H, Somaini G, Fear N, Wessely S: Aggressive and violent behavior among military personnel deployed to iraq and afghanistan: prevalence and link with deployment and combat exposure. *Epidemiologic Reviews* 2015, 37(1):196-212.

19. IPPNW: Nuclear Famine: Two Billion People at Risk—Global Impacts of Limited Nuclear War on Agriculture, Food Supplies, and Human Nutrition. (2nd Edition). Boston; International Physicians for the Prevention of Nuclear War (IPPNW), 2013.
<http://www.ippnw.org/nuclear-famine.html>
20. Forneris CA, Gartlehner G, Brownley KA, Gaynes BN, Sonis J, Coker-Schwimmer E, Jonas DE, Greenblatt A, Wilkins TM, Woodell CL *et al*: Interventions to prevent post-traumatic stress disorder: a systematic review. *American Journal of Preventive Medicine* 2013, 44(6):635-650.

Public Health Expert Briefing (ISSN 2816-1203)

Source URL: <https://www.phcc.org.nz/briefing/long-shadow-war-health-military-personnel>