

### Authors' reply

For more on the Syrian refugee estimates see <http://data.unhcr.org/syrianrefugees/country.php?id=122>

Nilsonne and colleagues expressed some concerns related to our meta-analysis, which showed increased levels of interleukin-6 in patients with post-traumatic stress disorder (PTSD).<sup>1</sup> We disagree with Nilsonne and colleagues' criticism, as we selected several analytic strategies to explore heterogeneity and bias, namely: subgroup meta-analysis, meta-regression, leave-one-out, Egger's test, and trim and fill.

We decided not to exclude potential outliers, because only a small number of studies were included for each interleukin. In this scenario, the exclusion of a study that appeared to be an outlier could neglect a true pattern. To the best of our knowledge, the decision to exclude outliers should be based on specific measures available in the metafor package and not by means of visual inspection of the funnel plot. In addition, we performed Duval and Tweedie's trim and fill method,<sup>2</sup> as Egger's linear regression test revealed a potential publication bias in the scenario proposed by Nilsonne and colleagues (ie, removing Guo and colleagues from the meta-analysis), and the result for interleukin 6 is still robust (standard mean difference 0.58, 95% CI 0.23 to 0.93;  $p=0.0012$ —one study was estimated on the left side).

In regards to the sample size, we analysed it as a potential moderator of the effect size, and the result was not significant ( $b=-0.0018$ ; 95% CI  $-0.0122$  to  $0.0086$ ;  $p=0.7385$ ). Moreover, the significance of the effect size remained robust when leave-one-out models were used for interleukin 6.<sup>1,3</sup> Lastly, we would like to emphasise that studies that included patients with severe medical illness, autoimmune or inflammatory disease, or use of anti-inflammatory or immunomodulatory drugs were excluded from our meta-analysis.<sup>1</sup>

In light of the above, we believe that the association between interleukin 6 and PTSD is robust in our meta-analysis. However, it is important to highlight that non-measured

confounders of the included studies might have overestimated the effect sizes reported.

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- 1 Passos IC, Vasconcelos-Moreno MP, Costa LG, et al. Inflammatory markers in post-traumatic stress disorder: a systematic review, meta-analysis, and meta-regression. *Lancet Psychiatry* 2015; **2**: 1002-12.
- 2 Duval S, Tweedie R. Trim and fill: a simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics* 2000; **56**: 455-63.
- 3 Viechtbauer W. Conducting meta-analyses in R with the metafor package. *J Stat Softw* 2010; **36**: 1-48.

## Mental health reform in Lebanon and the Syrian crisis

Lebanon is a small, middle-income country with a total population estimated at 4 million including 400 000 Palestinian refugees.

The recent hosting of more than 1.2 million Syrian refugees has placed an enormous strain on the health system. However, both public and private health care institutions have remained functional and able to respond to the increase in demand.

In 2014, the Lebanese Ministry of Public Health, in collaboration with WHO, UNICEF, and the International Medical Corps, launched the first National Mental Health Programme to reform the mental health system and scale up services.<sup>1</sup> The programme has been making steady progress, including coordination of the work of more than 62 organisations working in Mental Health and Psychosocial Support (MHPSS) in response to the Syrian crisis. In May 2015, the Ministry launched the first National Mental Health and Substance Use strategy. One of the main concerns is to strengthen the national system while avoiding the building of a parallel system for the persons affected by the Syrian crisis. Working within the framework of the national strategy, 106 members of staff including nurses, social workers, and general practitioners at 50 primary health care centres have been trained on the mental health Gap Action Program-Intervention Guide with the aim of integrating mental health into primary care. Staff at a further 30 primary health care centres have been trained in psychological first aid.

Furthermore, after finalizing a 4Ws (Who's doing What, Where, and until When) assessment to map the existing resources, we have delivered a series of training modules on suicide risk management for frontline healthcare staff, established regional MHPSS task forces in the south and north of Lebanon, and strengthened the links with the Bekaa task force. The Ministry of Public Health has finalised an online platform for the 4Ws, with the support of the United Nations development programme to deliver information about available resources, and is working on building

For more on the National Mental Health and Substance Use strategy see <http://www.moph.gov.lb/AboutUs/strategicplans/Pages/MentalHealthStrategy.aspx>

For more on the 4Ws see <http://mhps.net/the-4ws-in-lebanon-whos-doing-what-where-and-until-when-in-mhps-2015>

a national referral system between MHPSS and the protection sector (especially for women and child protection) to ensure timely crisis management.

In parallel, the National Mental Health Programme is scaling up the integration of mental health into primary care through training on mhGAP and the establishment of a support and supervision unit that would provide support for more than 100 primary health care centres all over Lebanon. The centres will be also linked to the referral system.

Against all odds, Lebanon's mental health system is not only coping with the escalating needs but is also growing. The factors that have led to this growth are many and some remain unknown to us. The following seem to be instrumental: using the momentum and increased interest created by the Syrian crisis, the clear policy to avoid building a parallel system of care, a complex, yet very effective collaboration between the Ministry; UN agencies; and national and international non-governmental organisations, achieving national consensus on a mental health strategy involving all health-care sector workers and policymakers in the country, and high level political support within the Ministry for mental health reform.

However, we need to bear in mind the major impact that social determinants have on mental health, especially in our region where aggression, conflict, and displacement have become daily occurrences. Unless we address key factors for mental health disturbance in our region, such as the ongoing conflict, the displacement, and the socio-political injustice, these positive strides for mental health may be severely hindered in becoming sustainable.

We declare no competing interests.

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- 1 El Chammay R, Ammar W. Syrian crisis and mental health reform in Lebanon. *Lancet* 2014; **384**: 494.

## Infection in people with severe mental illness

We commend Elizabeth Hughes and colleagues<sup>1</sup> on their study summarising the evidence on the prevalence of infectious diseases in people with severe mental illness.

We have two questions. First is whether additional sources of heterogeneity should have been explored in this study. When substantial heterogeneity is evident, explanations for the sources of between-study variation are arguably the most informative part of a meta-analysis of observational data.<sup>2</sup> In a meta-analysis of infectious diseases in homeless people,<sup>3</sup> we found differences in prevalence by diagnostic method, and year of publication. Hughes and colleagues' finding on the relationship between prevalence rates in general population samples and those in people with severe mental illness is potentially important, and could also benefit from further testing through meta-regression.

The second query is the appropriateness of presenting a pooled estimate. The authors do not report a statistical measure of heterogeneity, but acknowledge "clear clinical heterogeneity between the populations sampled". Despite this, pooled estimates are reported, and without an explanation for doing so in the face of such variation.

The abstract presents a pooled prevalence of HIV in people with serious mental illness in the USA. However, a range of estimates would be more informative as, without going into actual populations sampled by those studies, the included studies span 23 years; almost half the studies' 95% confidence intervals do not contain the pooled estimate; and there may be bias from small study effects (figure), which is exacerbated when using random-effects models.<sup>4</sup>

Overall in the Article, across infections and regions, around half of the 95% confidence intervals do not contain the pooled estimate, and we suggest that a systematic review without meta-analysis would have been more appropriate, possibly presenting prevalence ranges.

We declare no competing interests.

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- 1 Hughes E, Bassi S, Gilbody S, Bland M, Martin F. Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness: a systematic review and meta-analysis. *Lancet Psychiatry* 2016; **3**: 40-48.

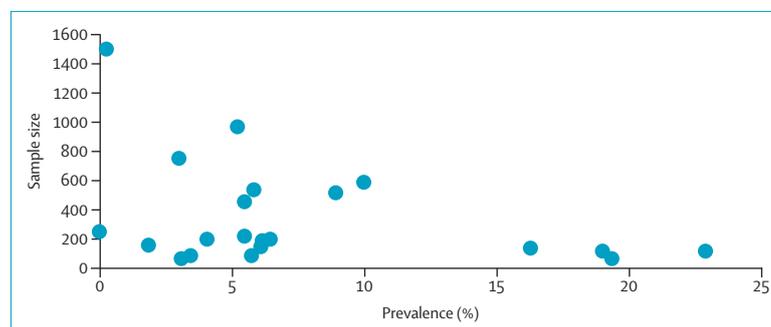


Figure: Prevalence of HIV in the USA