PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Patients' perspectives of tuberculosis treatment challenges and barriers to treatment adherence in Ukraine: A qualitative study
AUTHORS	Aibana, Omowunmi; Dauria, Emily; Kiriazova, Tetiana; Makarenko, Olena; Bachmaha, Mariya; Rybak, Natasha; Flanigan, Timothy; Petrenko, Vasyl; Becker, Anne; Murray, Megan

VERSION 1 – REVIEW

REVIEWER	Karina Kielmann Institute for Global Health & Development, Queen Margaret University, Scotland
REVIEW RETURNED	29-Jun-2019

GENERAL COMMENTS	The paper is well-written and based on sound qualitative research, as reflected in rich quotes. However, the results are not adequately situated within the Ukranian context nor within the available qualitative research on adherence to TB drug regimens. The findings and discussion are not particularly novel, in part because a generic framework has been used to organise findings (rather than an inductive approach to what informants say). In the attached file, I have some suggestions on how the authors might draw out more unique insights from the data collected. **Patients' perspectives of tuberculosis treatment challenges and barriers to treatment adherence in Ukraine: a qualitative study** This is a clearly written paper based on qualitative interviews conducted with adults with experience of being on TB treatment in Ukraine. The paper investigates factors hindering adherence to TB medication, using the 2003 WHO framework of determinants for adherence to long-term therapies, and aligning data findings along the five dimensions: socio-economic; health system related; therapy-related; patient-related and condition-related. The methodology is appropriate, and the findings are clearly presented in five sections. Overall, the paper does not say much beyond what is already known about factors impacting on adherence to TB treatment in the Eastern European region. In order to highlight the contributions of the analysis undertaken to the programme in Ukraine as well as to the qualitative literature on TB adherence, I have the following suggestions: 1) The introduction should provide better context on the model of service delivery for TB care in Ukraine as well as

more information on TB and TB patients in the Ukraine more broadly so that the reader is better able to situate the qualitative findings.

2) The introduction and discussion needs to reference and set the paper against the available qualitative literature in this area. The authors are missing several important (a number of which from the region) that provide depth and understanding of patients' experiences of being on treatment within the context of specific socio-political and health systems contexts. See, for example:

- Horter S, Stringer B, Greig J, et al. Where there is hope: a qualitative study examining patients' adherence to multi-drug resistant tuberculosis treatment in Karakalpakstan, Uzbekistan. *BMC Infect Dis*. 2016;16:362. DOI:10.1186/s12879-016-1723-8
- Janina Kehr (2016) The Precariousness of Public Health: On Tuberculosis Control in Contemporary France, Medical Anthropology, 35:5, 377-389, DOI: 10.1080/01459740.2015.1091819
- Kielmann K, Vidal N, Riekstina V, et al. "*Treatment is of primary importance, and social assistance is secondary*": A qualitative study on the organisation of tuberculosis (TB) care and patients' experience of starting and staying on TB treatment in Riga, Latvia. *PLoS One*. 2018;13(10):e0203937. DOI:10.1371/journal.pone.0203937
- Koch, Erin. 2011. "Local Microbiologies of Tuberculosis: Insights from the Republic of Georgia." *Medical Anthropology* no. 30 (1):81-101.
- Koch, Erin. 2013b. "Tuberculosis Is a Threshold: the Making of a Social Disease in Post-Soviet Georgia." *Medical Anthropology* no. 32 (4):309-24.
- Stringer, Beverley, Lowton, Karen, Tillashaikhov, Mirzagalib, Parpieva, Nargiza, Ulmasova, Dilrabo, du Cros, Philipp, Hasker, Epco and Sergeeva, Natasha (2016) *'They prefer hidden treatment': anti-tuberculosis drug-taking practices and drug regulation in Karakalpakstan.* International Journal of Tuberculosis and Lung Disease, 20 (8). pp. 1084-1090.

3) To go beyond the descriptive analysis, and bring the findings to 'life' in a more integrated way, the authors could:
   - 'Humanise' the presentation of participants by providing more on their stories of accessing and being on treatment which would also help with the interpretation of the barriers/facilitators analysis

	• Rather than listing out factors separately, consider how these factors interact dynamically for patients 4) The informants were recruited by TB providers and many of the interviews were conducted in the hospital itself. Can the authors comment on the limitations and potential bias in recruiting patients this way i.e. how did they overcome the problem of patients feeling obliged to participate or reluctant to speak about the care received? 5) Probably the most interesting sections of the paper are around informants' views on how systems issues (including infrastructure, environment, and provider attitudes) impact on adherence. This is similar to what we found in Latvia (see ref above Kielmann et al 2018) and could be developed more strongly as the central contribution of the paper since it is one of the dimensions least written about. 6) The discussion points mirror the descriptive analysis in that they are fairly generic and predictable. I would have liked to see much more thought given to what might support adherence in this particular setting with its distinct socio-political and policy features.

REVIEWER	Simoni Pimenta de Oliveira Secretaria de Estado da Saúde do Paraná, Brasil
REVIEW RETURNED	15-Oct-2019

GENERAL COMMENTS	I appreciated the manuscript, the purpose is clear, the results and conclusion are consistent. Congratulations on your decision to capture the patient's point of view on the critical barriers that hinder treatment. I have a few notes: Page 4, line 51. What is DSTB? This is the first time you use this acronym you need to explain. Page 89, lines 11, 12, and 13. Why is N different from 60? Some references are over 10 years old and you might not need to cite them or use newer papers such as numbers 6 through 12, 14,15, 24, 30, and 45. At the conclusion of the summary you can tell more about critical barriers and ways to overcome them. I suggest reading the recently published article https://doi.org/10.1371/journal.pone.0221688 "What works best for ensuring treatment adherence. Lessons from a social support program for people treated for tuberculosis in Ukraine" This is a qualitative research conducted in another region of Ukraine that involved patients and health professionals. It can help complement the suggestions in conclusions the manuscript.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1

1. The introduction should provide better context on the model of service delivery for TB care in Ukraine as well as more information on TB and TB patients in the Ukraine more broadly so that the reader is better able to situate the qualitative findings.

Response 1: We have revised the introduction (pages 4-5) to include more context about the organization of TB care in Ukraine in addition to providing detailed information about the epidemiology of TB in Ukraine.

2. The introduction and discussion needs to reference and set the paper against the available qualitative literature in this area. The authors are missing several important (a number of which from the region) that provide depth and understanding of patients' experiences of being on treatment within the context of specific socio-political and health systems contexts.

Response 2: We have made significant edits to the entire introduction (pages 4-5) and discussion (pages 16-18) sections to incorporate the suggested relevant papers and place our findings in the context of these previous studies from the region.

3. To go beyond the descriptive analysis, and bring the findings to 'life' in a more integrated way, the authors could:

- 'Humanise' the presentation of participants by providing more on their stories of accessing and being on treatment which would also help with the interpretation of the barriers/facilitators analysis

- Rather than listing out factors separately, consider how these factors interact dynamically for patients

Response 3: We appreciate this feedback regarding the presentation of study findings and the need to present the intersectionality of barriers to TB treatment adherence. First, we have revised the results section to open with an overall discussion of participants' experiences accessing TB care in Ukraine (pages 8-9) We believe that this addition to the beginning of the results provides a stronger context for the rest of the findings presented in the results. We also note that our study design, large sample size (N = 60) and data collection strategy are not directly amenable to the suggested style of in-depth analytic approach of individual participants. Several of the studies cited, which present their findings in this manner, were conducted in substantially smaller samples (e.g. N = 10). Nevertheless, where possible within our data and analytic framework, we have provided additional background detail on quoted participants in the results section. Lastly, we have also noted various intersections of the factors shaping TB treatment adherence in the results.

4. The informants were recruited by TB providers and many of the interviews were conducted in the hospital itself. Can the authors comment on the limitations and potential bias in recruiting patients this way i.e. how did they overcome the problem of patients feeling obliged to participate or reluctant to speak about the care received?

Response 4: We have revised our methods and limitations section to include:

Methods (page 6): *TB providers, who were not members of the study team, then contacted potential subjects to provide information about the study and refer interested individuals to study team. Study staff informed interested individuals about study objectives and procedures and how results could potentially inform interventions to improve TB care.*

Limitations (page 19): *TB providers approached eligible patients to provide them with study information and interviews frequently occurred in clinical settings despite offering participants their*

preferred choice of interview location. Although study staff informed participants that their decision to participate would not impact their future receipt of healthcare services and that the TB care providers would not be granted access to interview details, it remains possible that hospital-based recruitment and data collection may have resulted in selection bias. Our study results reflect a range of positive and negative descriptions of treatment settings and patient-provider interactions suggesting that patients did not feel obliged to only present a positive portrayal of their TB treatment experience.

5. Probably the most interesting sections of the paper are around informants' views on how systems issues (including infrastructure, environment, and provider attitudes) impact on adherence. This is similar to what we found in Latvia (see ref above Kielmann et al 2018) and could be developed more strongly as the central contribution of the paper since it is one of the dimensions least written about.

Response 5: We have expanded the results section (pages 11-13) dealing with the health system related factors and our entire updated discussion section (pages 16-17) highlights this finding with a more detailed discussion.

6. The discussion points mirror the descriptive analysis in that they are fairly generic and predictable. I would have liked to see much more thought given to what might support adherence in this particular setting with its distinct socio-political and policy features.

Response 6: In addition to all the changes to the discussion described above, we have included a 'Policy and Practice Implication' section (pages 18-19) that explicitly describes our recommendations for the major interventions that might improve adherence in Ukraine.

Reviewer: 2

1. Page 4, line 51.
What is DSTB? This is the first time you use this acronym you need to explain.

Response 1: DSTB refers to drug sensitive TB. We have made sure that the first use of DSTB is defined (page 4).

2. Page 89, lines 11, 12, and 13.
Why is N different from 60?

Response 2: The N in the footnotes of Table 2 refers to the number of people with data for the particular variable. For instance, 59 participants had information about presence/absence of substance use disorder, 58 participants had data about their HIV status, and among the 19 HIV positive patients, 18 had information about substance use disorder. We have clarified the annotation to indicate the number of missing observations instead:

1 Missing observations, N = 1
2 Missing observations, N = 2
3 Missing observations, N = 1

3. Some references are over 10 years old and you might not need to cite them or use newer papers such as numbers 6 through 12, 14,15, 24, 30, and 45.

Response 3: We have deleted or updated these references as suggested.

4. At the conclusion of the summary you can tell more about critical barriers and ways to overcome them. I suggest reading the recently published article "What works best for ensuring treatment adherence. Lessons from a social support program for people treated for tuberculosis in Ukraine." This is a qualitative research conducted in another region of Ukraine that involved patients and health professionals. It can help complement the suggestions in conclusions the manuscript.

Response 4: We have made significant changes throughout the discussion to incorporate this reference. We have also included a section called ‘Policy and Practice Implications’ (pages 18-19), which explicitly discusses ways to improve treatment adherence in Ukraine; and this section references findings from the suggested article.