

# The Socioeconomic Impact of Tuberculosis on Children and Adolescents

## Main findings from a scoping review

LONDON  
SCHOOL of  
HYGIENE  
& TROPICAL  
MEDICINE



Salla Atkins<sup>1,2</sup> and Delia Boccia<sup>3</sup>

and -- de la O Ribas Closa M, Heimo L, Egere U, Wambi P, Chenciner L, Sidney-Annerstedt K, Vanleeuw L, Carter D, Wingfield T, Lönnroth K



Karolinska  
Institutet

1. Tampere University, Tampere, Finland
2. WHO Collaborating Centre on Tuberculosis and Social Medicine, Karolinska Institutet, Stockholm, Sweden
3. London School of Hygiene and Tropical Medicine, London, UK



1

## Review rationale

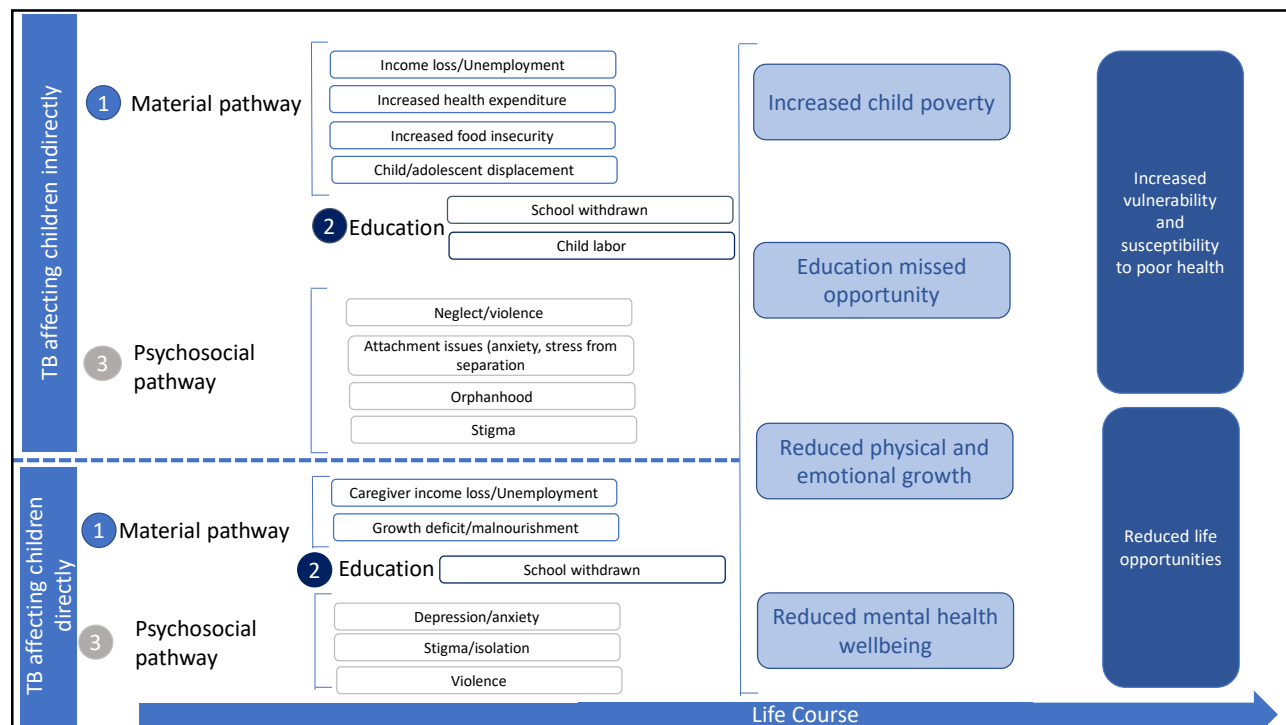
- Impact of poverty among adults is well established, little is known about impact of catastrophic costs and poverty on children
- Catastrophic costs affect the family unit or household, but we know little of how children fare in this equation
- No reason why this impact should be different from adults: need to go beyond the strictly 'financial' impact
- A largely under-investigated area of research
- We sought to map the quantity and type of evidence about the socioeconomic impact on children and adolescents

2

# Beyond financial impact

- Childhood poverty is multidimensional
- Psychosocial domains as important as the material one
- Need for a long-term / life – course perspective
  - Physical and cognitive impairment
  - Trauma and loss

3



4

## Review aim and objectives

To understand the socioeconomic impact of tuberculosis on children and adolescents

Specific objectives:

1. To explore how this socioeconomic impact has been conceptualized and operationalised in the literature (beyond financial impact)
2. To appraise the extent to which the evidence available support an a priori defined conceptual framework and what knowledge gaps emerge.
3. To understand whether the socioeconomic impact differs when the child is the primary TB patient (i.e. TB affects *directly* children and adolescents) and when the primary patient/s is one of the household member and possibly a caregiver (i.e. TB affects *indirectly* children and adolescents)
4. To investigate the potential life-course consequences of experiencing TB in childhood and adolescence

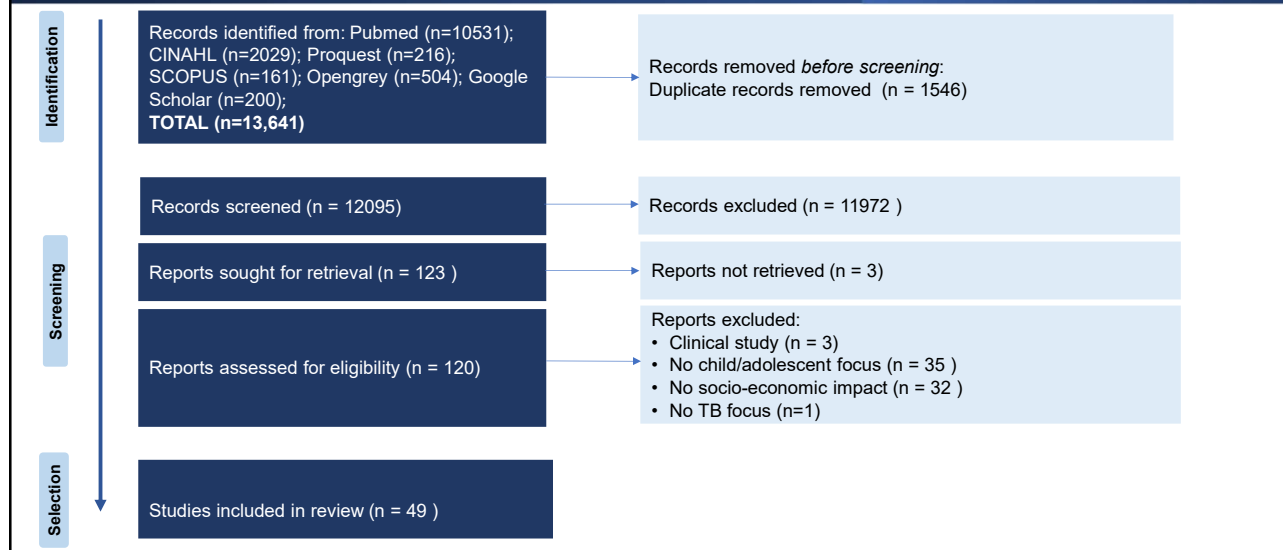
5

## Review methods

Design	Scoping review
Inclusion criteria	<ul style="list-style-type: none"> <li>• Children or adolescents from 0-19 years of age</li> <li>• Tuberculosis, including active and latent TB; drug susceptible and drug resistant TB; pulmonary and extra-pulmonary</li> <li>• Qualitative, quantitative or mixed methods</li> <li>• Social, economic, or cultural impact in short and long term</li> </ul>
Exclusion criteria	<ul style="list-style-type: none"> <li>• TB vaccines or medications development</li> <li>• Socioeconomic causes of TB without a focus on impacts</li> <li>• Clinical outcomes or case reviews of TB treatment</li> <li>• Letters or editorials without reporting research results</li> </ul>
Search strategy	<ul style="list-style-type: none"> <li>• Databases: Proquest, CINAHL, Medline(Pubmed), OpenGrey, Google Scholar</li> <li>• Articles between January 1st 1990 to April 7th, 2021 (GS: First 20 pages)</li> <li>• Studies in any language</li> <li>• Search terms in three blocks: (1) Tuberculosis; (2) Child or adolescents; (3) Socioeconomic impacts as defined by the conceptual framework</li> </ul>
Evidence synthesis	Narrative

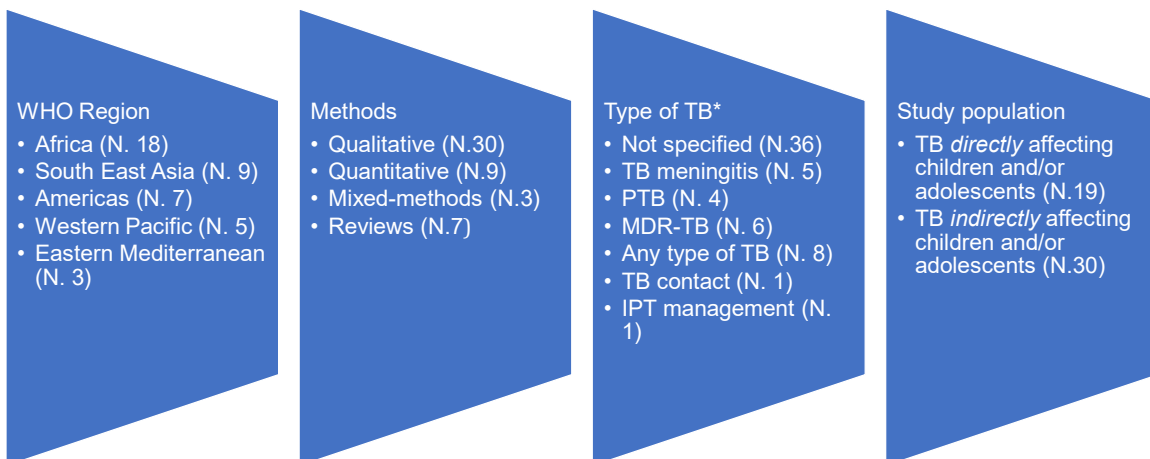
6

## Papers included: PRISMA flowchart



7

## Studies description



\*Total > 49 as some studies reported more than one type of TB

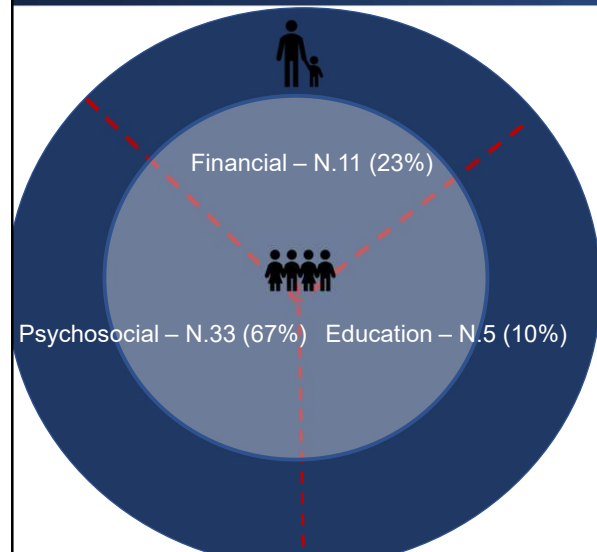
8

# Socioeconomic impact assessment

Type of impact	EDUCATION	FINANCIAL	PSYCHOSOCIAL	Grand Total
challenge in administering medication to children			6	6
challenge to accompanying child		1		1
child separation from family			9	9
child separation from friends			1	1
childcare arrangements			7	7
children contracting TB from family members				
children financing TB treatment costs		3		3
cognitive skills and behaviour			5	5
death or abandonment by parent			2	2
dissolution of parental relationships			4	4
employment impact		6		6
exclusion			3	3
financial impact		16		16
impact on mental health			2	2
impact on nutrition		4		4
impact on parental mental health (stress)			5	5
impact on schooling		14		14
impact on social relations			5	5
self esteem			1	1
stigma/discrimination			20	20
TB patient as a burden to caregivers			2	2
<b>Grand Total</b>	<b>14</b>	<b>30</b>	<b>66</b>	<b>115</b>

9

## Socioeconomic impact assessment by study method



Study method/ type of impact	Direct TB	Indirect TB	Total
<b>Mixed methods</b>	<b>0</b>	<b>3</b>	<b>3</b>
Financial	0	1	1
Psychosocial	0	2	2
<b>Qualitative</b>	<b>14</b>	<b>16</b>	<b>30</b>
Education	1	2	3
Financial	3	0	3
Psychosocial	10	14	24
<b>Quantitative</b>	<b>4</b>	<b>6</b>	<b>10</b>
Education	2	1	2
Financial	1	2	3
Psychosocial	1	3	4
<b>Review</b>	<b>1</b>	<b>6</b>	<b>7</b>
Education	0	0	0
Financial	0	4	4
Psychosocial	1	2	3
<b>Grand Total</b>	<b>19</b>	<b>30</b>	<b>49</b>

10

## Slide 10

---

**SA(1)** review the slide for table accuracy and circle thingy

Salla Atkins (TAU); 28.5.2021

**SA(2)** done already? Cannot see.

Salla Atkins (TAU); 28.5.2021

## Financial impact and education: Closely related

Education and child development	6 qualitative studies	Financial impact	9 qualitative studies
Impact on treatment on cognitive skills and behaviour	South Africa	Conflict between a need to earn a living and a child's treatment	Peru, South Africa, China
Scholastic attainment following treatment	South Africa, India, Brazil, China	Prohibitive cost of travel to visit children	South Africa, Botswana
Impact of financial situation on education	India	Overall impact on family finances	Peru, South Africa, India, China, Botswana
Conflict between clinic appointments and school attendance	South Africa, Brazil, India, China	Nutrition	India
Anxiety and stress regarding falling behind	South Africa, China		

*"I stopped everything, I stopped my life to take care of Lilian (...) I took her out of school, she spent a year without study" – Machado et al 2015; Brazil*

11

## Psychosocial impact: Stigma and mental wellbeing

Stigma - Perceived and enacted (discrimination)	14 qualitative studies	Mental wellbeing	6 qualitative studies
Stigma in general	China, South Africa, Nepal, Brazil	Parental anxiety over separation/infecting child/finances/stigma	South Africa, China, Peru, Egypt, Malaysia
Impact on marriage potential of adolescents and young adults	Ghana; India; Vietnam	Adolescent stress and anxiety – school and dependence	China
Worry and anxiety, prevented disclosure and potentially treatment	Lesotho, Brazil, Peru, South Africa		

*"Patients and families were unable to avert poverty and the total-and potentially catastrophic-costs of accessing care, while experiencing a significant social emotional and psychological toll, for some in the form of strained familial relationships and social stigma." (Hutchinson 2017; China)*

12

## Psychosocial impact: Separation and childcare

Separation	11 qualitative studies	Childcare	5 qualitative studies
Transport cost prohibitive to visit a child in hospital	South Africa	Parents' TB impacting on their caregiving	Nepal, Ghana, China, Venezuela
Self imposed distancing within the household	India; Bangladesh; VietNam; Thailand; China; Peru; Egypt (Sudan)	Change of caregiving roles	Ghana, Bangladesh, China, Nepal, Egypt, Vietnam, Peru,
Children not being allowed to play with friends (stigma)	China; Peru; Nepal; South Africa	Challenges in medication administration	Brazil, South Africa, Botswana
Child not being able to see their caregiver	South Africa; Vietnam; Egypt; Bangladesh; Ghana	Adolescents' dependence on their parents	China, (Botswana)

13

## Impact findings: quantitative studies

Socioeconomic domain	Impact			
Financial	Costs	Job loss / income loss	Costs	Malnutrition
Education	Reduced cognitive skills due to malnutrition	School withdrawn	Cognitive skills impairment from medication and disease	
Psychosocial – mental health and wellbeing	Anxiety, depression, attention deficit disorder, anti-social behavior			
Psychosocial – stigma	Isolation, discrimination	Discrimination	Loss of marriage potential / opportunities	
Psychosocial – childcare limitations	Increased caregiver responsibility			
Psychosocial – attachment and separation	Fear of contagion			

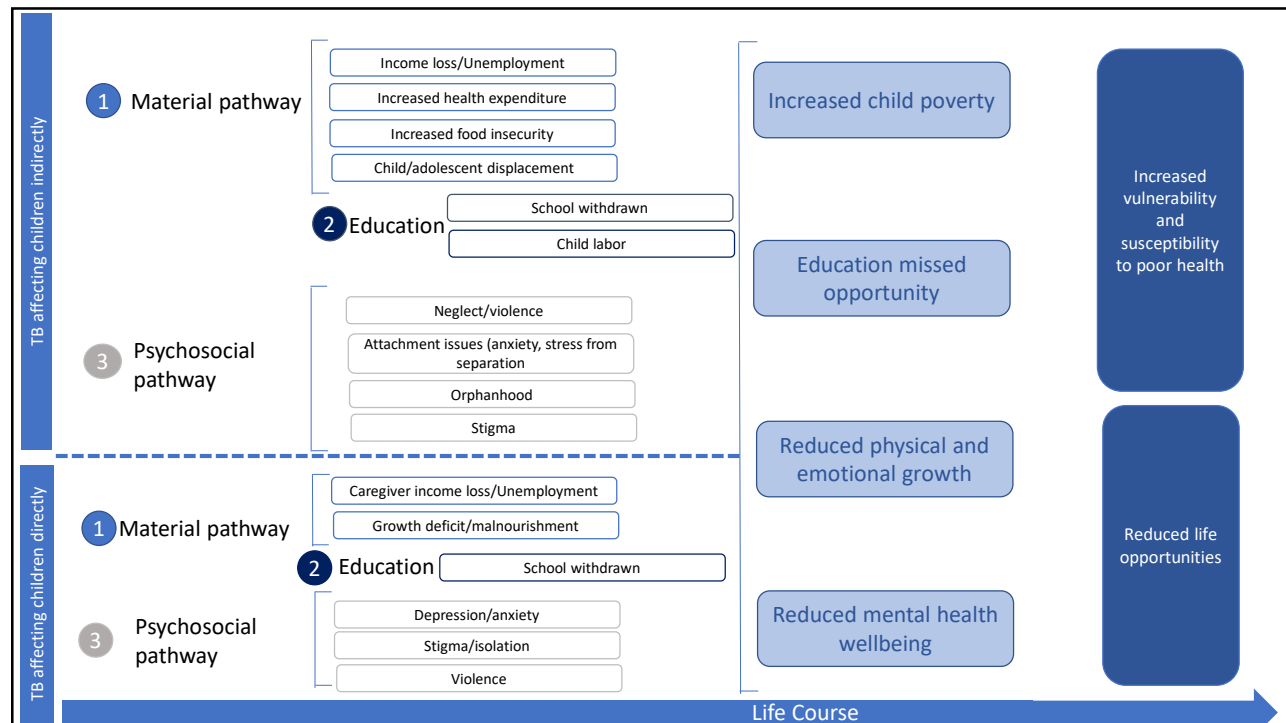
14



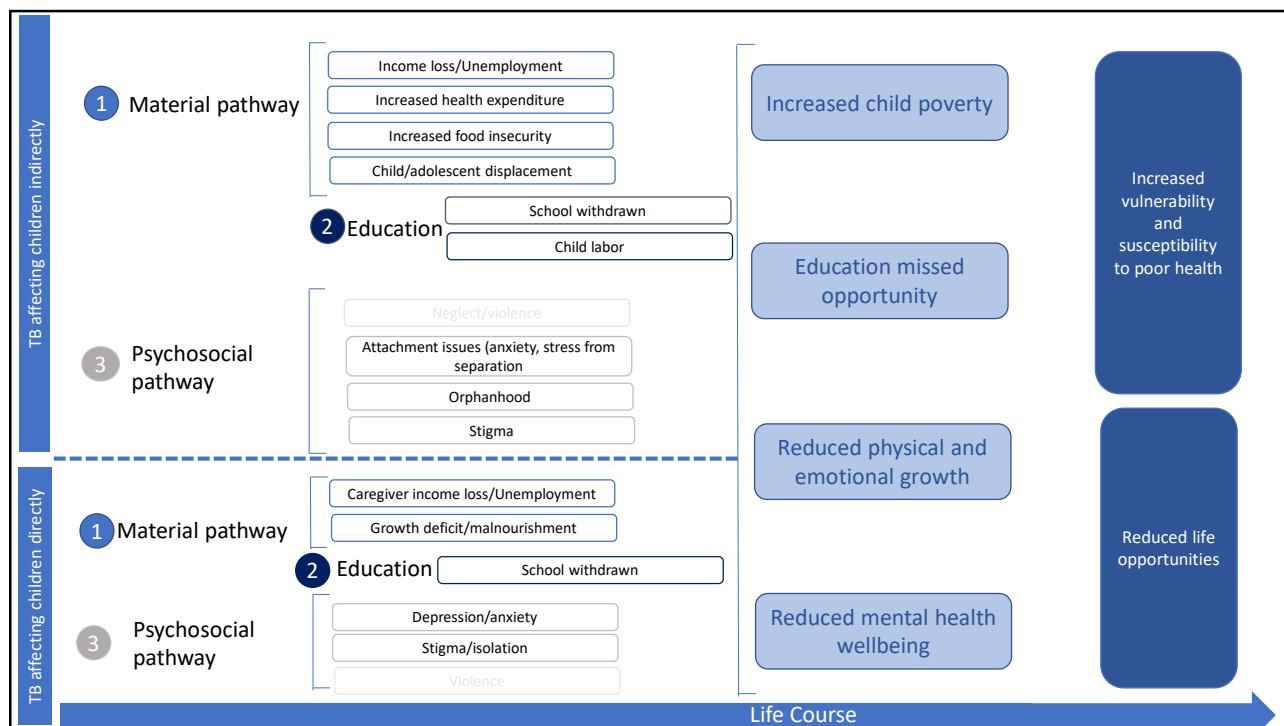
## Findings from 7 reviews

- Impact on:
  - Child caregiving
  - Economic activity
  - Health
  - Education
  - Nutrition
- Effect on caregiving and children's outcomes poor when affecting their mothers (N.3)
- Cognitive, motor, language and behaviour sequelae for TB Meningitis
- Households changing consumption patterns to finance illness, impacting on nutrition and possibly growth and development

15



16



17

## Discussion

- As expected, there is little focus on TB among children or adolescents
- Most studies had children or adolescents as part of a larger sample without disaggregation
- Studies among/about adolescents were severely underrepresented
- The socioeconomic impacts of TB disease, whether directly for children or adolescents are interrelated
- Key areas require more research: including how family economics in context of TB impact specifically on children and adolescents
- Findings suggest that TB affects a household economically, but also causes substantial psychological distress and severe damage at multiple levels

18

## Conclusions

- Results are preliminary, but scale of problem likely to be big
- Key barriers persist to fully quantify and understand the problem:
  1. Significant methodological heterogeneity in terms of design, impact operationalisation and different measurement strategies
  2. Unclear understanding of how these measures overlap and interact with each other
  3. No evidence of how experiencing TB in childhood affect the life trajectory of these children, other words whether this impact is long-term and somewhat affects opportunities in life
  4. No study as yet on the role of social protection at mitigating this impact or indeed intervention studies in the area

19

## Acknowledgements

And the WHO Global TB programme for support

20