

Prevalence of depression among patients with suspected tuberculosis at the Health Center of Duque de Caxias, Rio de Janeiro, Brazil

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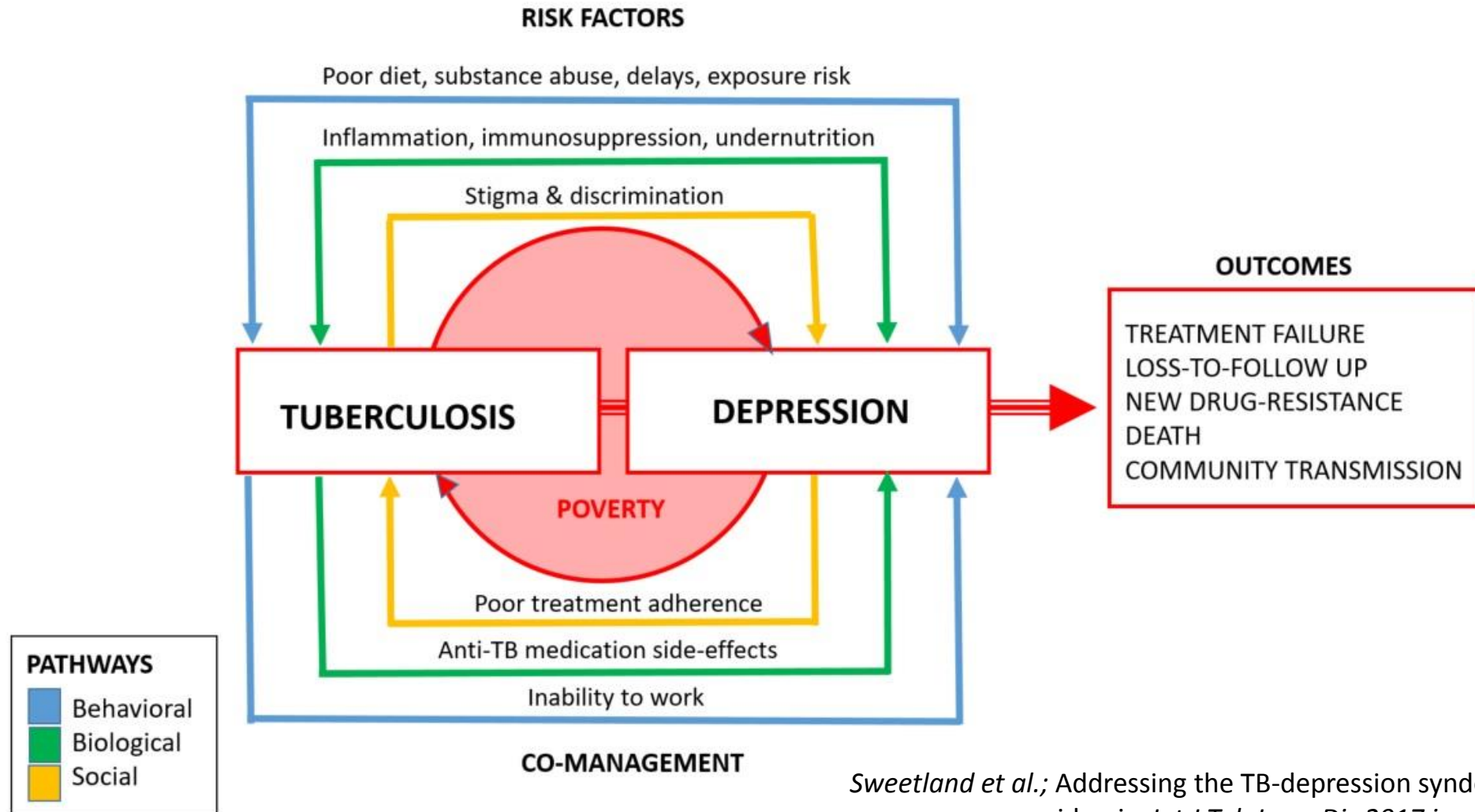
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✓ Background

- Depression is a common mental disorder.
- Globally, more than 300 million people of all ages suffer from depression.
- Depression is the leading cause of disability worldwide, and is a major contributor to the overall global burden of disease.
- More women are affected by depression than men.

- TB x Depression – Immunomodulation and lower levels of neurotransmitters
- Reduced search for health services, reactivation and disease progression, higher rates of default of TB treatment
- Symptoms of TB and depression may overlap (loss of appetite, asthenia, weight loss)

Figure 1. The TB-depression syndemic model



Sweetland et al.; Addressing the TB-depression syndemic to end the TB epidemic, Int J Tub Lung Dis 2017 in press

Objective

- To estimate the prevalence of Major Depressive Episode (MDE) and the clinical and epidemiological factors associated with its occurrence among patients suspected of pulmonary TB attended at the Municipal Health Center of Duque de Caxias.

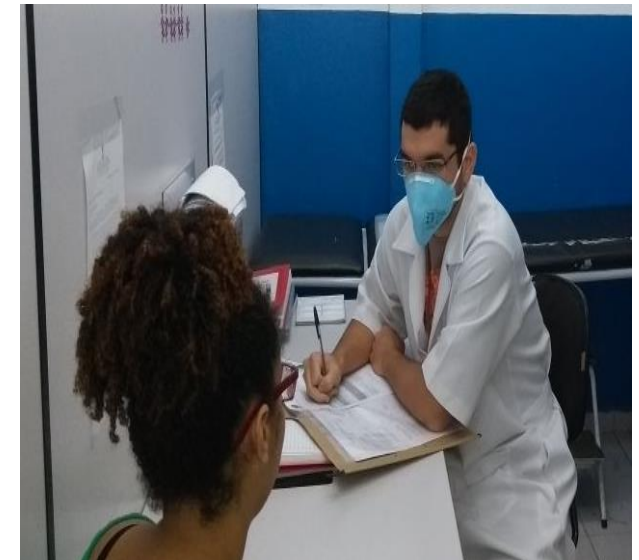
Methods

- Study design: cross-sectional, based on interviews with standardized questionnaire.
- Period of study: July 2015 – December 2016.
- Site: Municipal Health Center of Duque de Caxias, Rio de Janeiro.
- Participants: respiratory symptomatic patients (cough \geq 3 weeks) older than 18 years of age.

Methods

Patients interview

- Sociodemographic and clinical questionnaire.
- Patient Health Questionnaire – 9 (PHQ-9)
 - ✓ Screening test for MDE – varies from 0 to 27



Methods

PHQ-9 severity of depression

Diagnosis	Range
Not depressed	0 -4
Mild depression	5 – 9
Moderate depression	10 -14
Moderately severe depression	15 – 19
Severe Depression	20 - 27

Methods

Patients interview

- Mini International Neuropsychiatric Interview Plus (Mini Plus)

- ✓ Confirmatory test for MDE

- ✓ MDE current x past

*Mini Mental: cognitive impairment evaluation.

A. MAJOR DEPRESSIVE EPISODE

(➔ MEANS : GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

A1	Have you been consistently depressed or down, most of the day, nearly every day, for the past two weeks?	NO	YES
A2	In the past two weeks, have you been much less interested in most things or much less able to enjoy the things you used to enjoy most of the time?	NO	YES
	IS A1 OR A2 CODED YES?	➔ NO	YES

A3 Over the past two weeks, when you felt depressed or uninterested:

a	Was your appetite decreased or increased nearly every day? Did your weight decrease or increase without trying intentionally (i.e., by $\pm 5\%$ of body weight or ± 8 lbs. or ± 3.5 kgs., for a 160 lb./70 kg. person in a month)? IF YES TO EITHER, CODE YES.	NO	YES *
b	Did you have trouble sleeping nearly every night (difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)?	NO	YES
c	Did you talk or move more slowly than normal or were you fidgety, restless or having trouble sitting still almost every day?	NO	YES *
d	Did you feel tired or without energy almost every day?	NO	YES
e	Did you feel worthless or guilty almost every day?	NO	YES
f	Did you have difficulty concentrating or making decisions almost every day?	NO	YES
g	Did you repeatedly consider hurting yourself, feel suicidal, or wish that you were dead?	NO	YES

ARE 5 OR MORE ANSWERS (A1-A3) CODED YES?

NO	YES *
<i>MAJOR DEPRESSIVE EPISODE, CURRENT</i>	

IF PATIENT HAS CURRENT MAJOR DEPRESSIVE EPISODE CONTINUE TO A4, OTHERWISE MOVE TO MODULE B:

A4 a	During your lifetime, did you have other episodes of two weeks or more when you felt depressed or uninterested in most things, and had most of the problems we just talked about?	➔ NO	YES
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NO	YES
<i>MAJOR DEPRESSIVE EPISODE, RECURRENT</i>	

* If patient has Major Depressive Episode, Current, use this information in coding the corresponding questions on page 5 (A6d, A6e).

Results

Univariate analysis of variables associated with TB diagnosis. MHC – Duque de Caxias. Jul 15 - Dec 16.

	TB diagnosis based on positive bacilloscopy/GeneXpert n= 260 (%)		OR (95% CI)	
	No n= 162 (62.3)	Yes n= 98 (37.7)		
Sexo				
M	98 (60.9)	62 (62.6)	0.92 (0.55 – 1.6)	
F	63 (39.1)	37 (37.4)		
Média de idade (±DP) n=255	46.9 (16,0)	40.7 (15.7)	NA	p=0.003
Renda familiar média (±DP) n=97	1,319.3 (988.4)	1,131.8 (789.9)	NA	p= 0.33
Etnia n=210				
Branca	26 (20.0)	13 (16.3)	1	
Negra	39 (30.0)	29 (36.3)	1.49 (0.65 – 3.38)	
Amarela	12 (9.2)	4 (5.0)	0.67 (0.18 – 2.48)	
Parda	52 (40.0)	32 (40.0)	1.23 (0.55 – 2.73)	
Indígena	1 (0.8)	2 (2.5)	4,0 (0.33 – 48.3)	
Escolaridade n=209				
< 8 anos	89 (69.5)	64 (79.0)	0.6 (0.31 – 1.16)	
≥ 8 anos	39 (30.5)	17 (21.0)		

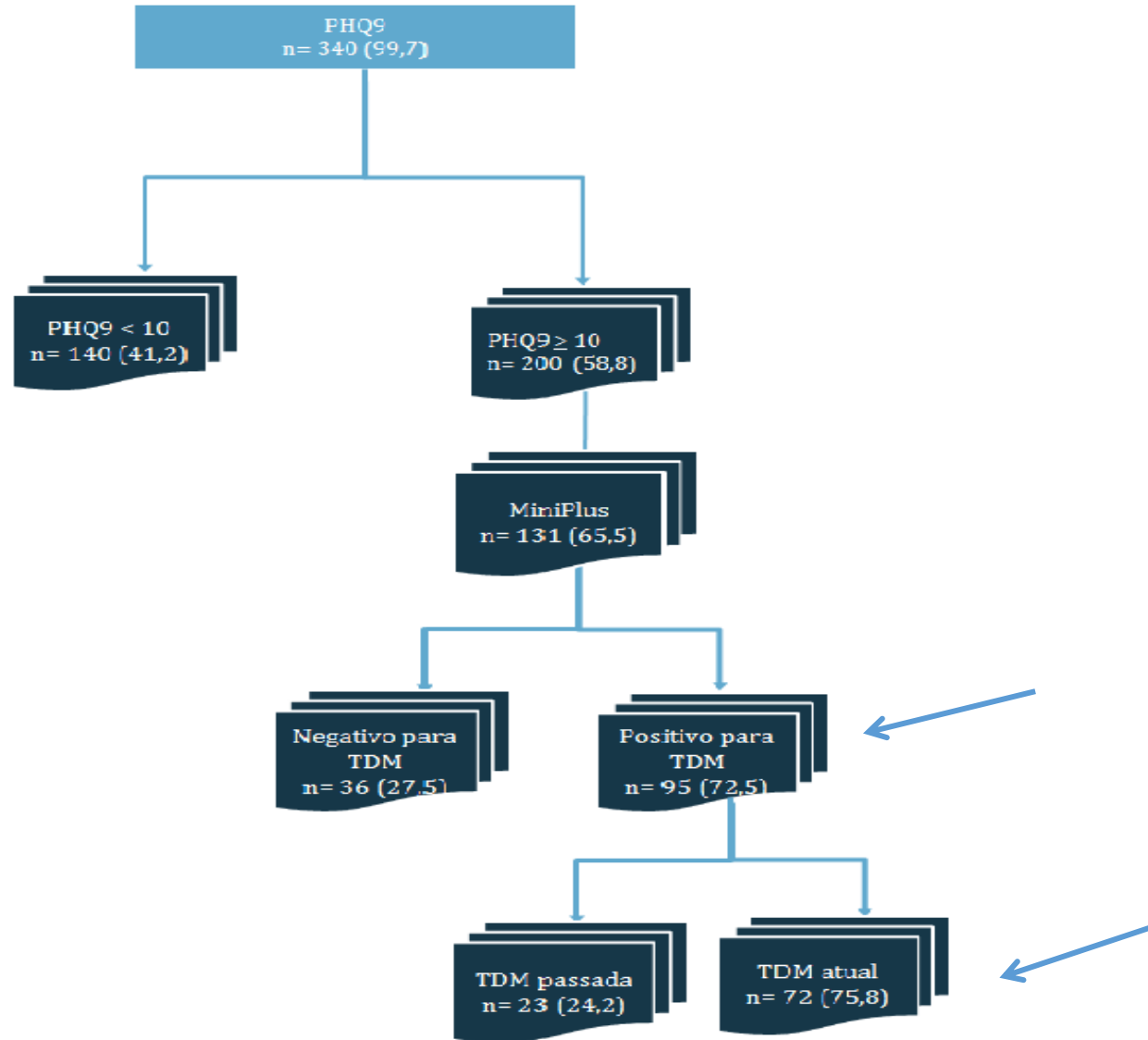
Univariate analysis of variables associated with TB diagnosis. MHC – Duque de Caxias. Jul 15 - Dec 16.

	TB diagnosis based on positive bacilloscopy/GeneXpert n= 260 (%)		OR (95% CI)
	No n= 162 (62.3)	Yes n= 98 (37.7)	
BMI - 18,5 kg/m² n=146			
BMI < 18,5 kg/m ²	18 (20,2)	20 (35,1)	0,4 (0,2 – 0,9)
BMI >= 18,5 kg/m ²	71 (79,8)	37 (64,9)	
Tosse n=204			
tosse <=8 semanas	112 (89,6)	60 (75,9)	2,7 (1,2- 5,9)
tosse > 8 semanas	13 (10,4)	19 (24,1)	
Mini Mental n=206			
Normal	106 (82,2)	56 (72,7)	1,7 (0,8- 3,3)
Déficit Cognitivo	23 (17,8)	21 (27,3)	
Presença de pelo menos 1comorbidade			
Não	129 (80,1)	75 (75,8)	1,2 (0,7-2,4)
Sim	32 (19,9)	24 (24,2)	

Response to PHQ 9 questionnaire among TB and non TB patients. MHC – Duque de Caxias. Jul 15 - Dec 16.

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Non TB n= 161 (%)	TB n= 98 (%)	P value
1. Little interest or pleasure in doing things	105 (65.2%)	65 (66.3%)	0.89
2. Feeling down, depressed, or hopeless	107(66.5%)	71 (72.4%)	0.34
3. Trouble falling or staying asleep, or sleeping too much	125 (77.6%)	76(77.6%)	1.0
4. Feeling tired or having little energy	143 (88.8%)	80 (81.6%)	0.14
5. Poor appetite or overeating	177 (72.7%)	85 (86.7%)	0.009
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	91(56.5%)	55 (56.1%)	1.0
7. Trouble concentrating on things, such as reading the newspaper or watching television	77(47.8%)	42 (42.9%)	0.44
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	99(61.5%)	54 (55.1%)	0.36
9. Thoughts that you would be better off dead or of hurting yourself in some way	34 (21.1%)	21 (21.4%)	0.88

*Response to MiniPlus questionnaire among respiratory symptomatic patients with PHQ9 ≥ 10 .
MHC Duque de Caxias. Jul 15 – Dec 16.*



TB vs. Depression

PHQ9 response (n=259)

	Non TB (N=161)	TB (N=98)	OR (95% CI)	P value
PHQ9 < 10	61 (37.9)	39 (39.8)	0.92 (0.55 – 1.54)	0.79
PHQ9 ≥ 10	100 (62.1)	59 (60.2)		

MiniPlus response (n=97)

	Non TB (N=55)	TB (N=42)	OR (95% CI)	P value
Previous MDE or no MDE	27 (49.1)	17 (40.5)	1.42 (0.63 – 3.19)	0.42
Current MDE	28 (50.9)	25 (59.5)		

Univariate analysis of factors associated with current major depressive episode. MHC – Duque de Caxias. Jul 15 - Dec 16.

Variables	Major Depressive Episode (MINIP PLUS) n= 131 (%)		OR (CI 95%)	P value
	No	Yes		
Sex				
M	38 (64,4)	31 (43,1)	2,39 (1,18–4,86)	0,02
F	21 (35,6)	41 (56,9)		
Age (mean ± SD)	44,2 (15,5)	44,9 (15,2)		0,81
Ethnicity (n=127)				
White	9 (15,8)	11 (15,7)	1	
Black	22 (38,6)	20 (28,6)	0,74 (0,25 - 2,17)	0,59
Asian	4 (7,0)	6 (8,6)	1,23 (0,26 - 5,73)	0,79
Mulatto	22 (38,6)	32 (45,7)	1,19 (0,42 - 3,35)	0,74
Indigean	0 (0)	1 (1,4)	NA	NA
Civil state				
Married	26 (44,1)	31 (43,1)	1,04 (0,52 – 2,09)	1.0
Unmarried	33 (55,9)	41 (56,9)		
Years of school (n=128)				
< 8 years	42 (72,4)	53 (75,7)	0,84 (0,38–1,86)	0,69
≥ 8 years	16 (27,6)	17 (24,3)		
Monthly income (mean ± SD) (n=114)	1.247,3 (830,3)	1.289,7 (894,6)		0,85
BMI - 18,5 kg/m² (n=105)				
BMI < 18,5 kg/m²	12 (27,9)	16 (25,8)	1,11 (0,46- 2,67)	0,83
BMI ≥ 18,5 kg/m²	31 (72,1)	46 (74,2)		
Cough (n=125)				
cough ≤8 weeks	45 (80,4)	54 (78,3)	1,14 (0,47 - 2,72)	0,83
cough > 8 weeks	11 (19,6)	15 (21,7)		

Presence of at least one comorbidity, except drug use (n=130)	MDE No	MDE Yes	OR (CI 95%)	P value
<i>N</i>	37 (62,7)	42 (59,2)	1,16 (0,57 - 2,36)	0,72
<i>Y</i>	22 (37,3)	29 (40,8)		
Diabetes (n=131)				
<i>N</i>	51 (86,4)	66 (91,7)	0,58 (0,19 - 1,78)	0,40
<i>Y</i>	8 (13,6)	6 (8,3)		
Drug use (n=131)				
<i>N</i>	53 (89,2)	59 (81,9)	1,95 (0,69 - 5,48)	0,22
<i>Y</i>	6 (10,2)	13 (18,1)		
HIV (n=79)				
<i>N</i>	29 (82,9)	41 (93,2)	0,35 (0,08 – 1,53)	0,17
<i>P</i>	6 (17,1)	3 (6,8)		
Tobacco smoke (n=126)				
<i>N</i>	29 (50,9)	37 (53,6)	0,90 (0,44 - 1,81)	0,86
<i>Y</i>	28 (49,1)	32 (46,4)		
CAGE (n=216)				
<i>Negative</i>	37 (69,8)	46 (69,7)	1,0 (0,46 - 2,21)	1,0
<i>Positive</i>	16 (30,2)	20 (30,3)		
Homeless				
<i>N</i>	58 (98,3)	70 (97,2)	1,66 (0,15 – 18,7)	1,0
<i>Y</i>	1 (1,7)	2 (2,8)		
Mini Mental (n=125)				
<i>Normal</i>	47 (82,5)	50 (73,5)	1,69 (0,71 – 4,04)	0,28
<i>Cognitive deficit</i>	10 (17,5)	18 (26,5)		
Default of TB treatment (n=23)				
<i>N</i>	11 (91,7)	9 (81,8)	2,44 (0,19 - 31,53)	0,59
<i>Y</i>	1 (8,3)	2 (18,2)		

Comments

- We found a high prevalence of MDE in our study population:
 - ✓ PHQ9= 59% (200/340)
 - ✓ The use of MiniPlus test confirmed the diagnosis of MDE in only 36% (72/200) of the cases detected with PHQ9 (23% difference).
- Appetite disorder was more frequent in TB patients who responded to PHQ9 (87% vs. 73%).
- The prevalence of current MDE among TB patients (59.5%) was not significantly higher than that found among symptomatic respiratory patients (51%).

Comments

- Among the evaluated variables, only being female (OR = 2.39; CI 95%: 1.18-4.86) was associated with a higher risk of current MDE.
- New studies are needed to evaluate the factors associated with depression in our population and to identify the causal relationship between the two diseases in prospective studies.

Many thanks!

