

## A randomised trial of the impact of counselling on treatment adherence of tuberculosis patients in Sialkot, Pakistan

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### SUMMARY

**SETTING:** Tuberculosis Department, Bethania Hospital, Sialkot, Pakistan.

**OBJECTIVE:** To determine whether intensive counselling can improve treatment adherence.

**DESIGN:** In a randomised controlled intervention trial of 1019 adult tuberculosis patients, 49% were assigned to the intervention group and 51% to the control group. Baseline data were obtained through semi-structured interviews. Patients were followed until the end of treatment (cure, default, referral or death). The intervention included counselling at the start of treatment and at each subsequent visit for ambulatory patients, or weekly for hospitalised patients. Counselling combined health education with strategies to strengthen patients' self-efficacy.

Control group patients received the usual care. The outcome measure was treatment default.

**RESULTS:** The default rate was 54% in the control group and 47% in the intervention group: the default risk ratio was 0.87, implying a reduction in defaulting of 13%. The impact was stronger in women, ambulatory patients, re-treatment patients, women who worked in the home, and patients who were not the main provider, those with a poor knowledge of the disease or those with a short treatment delay.

**CONCLUSIONS:** Intensive counselling has a significant, although limited, impact on treatment adherence.

**KEYWORDS:** tuberculosis; counselling; intervention; treatment adherence; Pakistan

IN PAKISTAN, tuberculosis is a major public health problem: more than 210 000 new cases occur each year.<sup>1</sup> Tuberculosis has been identified as the second cause of death among adults aged 15–50 years.<sup>2</sup> Poor treatment adherence is also problematic in Pakistan, and overall tuberculosis cure rates are below 50%.<sup>3</sup>

As in many other parts of the world, tuberculosis is still perceived as a stigmatised disease.<sup>4</sup> Poor functioning of the primary health care system hampers the implementation of directly observed therapy (DOT), and only a few districts have introduced supervised treatment.<sup>5</sup> As an alternative strategy to guarantee treatment supervision, centres hospitalise their patients during the initial 2 months of treatment.

Bethania Hospital (BH) is a mission hospital situated in the outskirts of Sialkot City (approximately 800 000 population), in the Punjab province of Pakistan. BH has been an acknowledged centre for tuberculosis control since 1970. Poor adherence rates are a major problem in BH, and in 1992, admission was begun for the initial treatment phase in an attempt to improve treatment adherence. Patients who accepted at least 6 weeks of hospitalisation had significantly better compliance than those treated on an ambulatory basis.<sup>6</sup> Unfortunately 2-month hospitalisation was not attainable for many patients, and even when the 8-

month short-course chemotherapy regimen (2SHRZ/6HE) or the re-treatment regimen (2SHRZE/1HRZE/5HRE)\* were prescribed, default rates reached 34%. In addition, 12% of patients diagnosed with tuberculosis either did not start their treatment or defaulted in the first 2 weeks (Evaluation of the tuberculosis programme in Bethania Hospital, Sialkot, Pakistan, 1992. Annual report. Damien Foundation, Brussels, 1994. Unpublished).

Besides demographic and socio-economic factors, cognitive and emotional factors are often related to treatment adherence.<sup>7–9</sup> Personal experience, social attitudes and health beliefs interact and ultimately influence health behaviour.<sup>10</sup>

The present intervention trial was conceived within the framework of Bandura's social-cognitive learning theory, which postulates that health behaviour is determined by expectations of outcome and self-efficacy. Perceived efficacy depends on people's preconceptions concerning their coping capabilities, the perceived difficulty of the task, the amount of effort required, their physical and emotional state, the amount of external support they receive and the context.<sup>11</sup>

\* S = streptomycin; H = isoniazid; R = rifampicin; Z = pyrazinamide; E = ethambutol. Numbers refer to the duration in months.

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The underlying hypothesis of the present study was that intensive counselling improves treatment adherence. Counselling is a process that consists of improving patients' knowledge about tuberculosis and its curability, enhancing patients' belief in their ability to complete treatment, and developing problem-solving skills to overcome non-supportive family and community environments. Through counselling patients receive permanent support to continue with treatment and to overcome problems that may jeopardise adherence.

The objective of the study was to assess the overall impact of counselling on treatment defaulting and to identify sub-groups in which counselling was the most effective.

## MATERIAL AND METHODS

### Protocol

The study was a randomised controlled intervention trial measuring the impact of counselling by social workers. The population under study comprised all tuberculosis patients diagnosed in BH between 1 January and 30 November 1995. Children below 15 years of age, critically ill patients and patients enrolled for the 9-month regimen (a small number) were excluded.

The intervention combined health education with strategies to increase self-efficacy. For the intervention group (IG), ambulatory patients received individual counselling from a counsellor each time they attended for follow-up assessment, and admitted patients received weekly counselling in the tuberculosis ward. Patients belonging to the control group (CG) were given the usual explanations about their disease and treatment by the medical staff.

The main tasks of the counsellors are described in Table 1. Two male and two female para-medics received a 2-week training course in counselling. They belonged to the same socio-economic background as the majority of the patients, and were fluent in the different local vernaculars.

According to treatment policy, patients scheduled for short-course treatment were advised to accept hospitalisation for the 2 months of the intensive phase of treatment. Ambulatory patients mainly received a 12-month regimen.<sup>†</sup> Of the 63% of patients who accepted hospitalisation, only 40% remained hospitalised for the full 2 months. Ambulatory patients had bi-monthly follow-up visits during the intensive phase of treatment. All patients were treated on an ambulatory basis during the continuation phase and had monthly appointments to collect their drugs and for a check-up.

The primary outcome measure was treatment adherence: an adherent patient was defined as a patient who collected his/her drugs at the scheduled appointment. A defaulter was defined as a patient who

**Table 1** Task description of social counsellors

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- To identify and address uncertainties concerning tuberculosis, correct treatment and the curability of the disease.
  - To verify correct understanding of drug intake.
  - To increase patient's motivation to adhere to the full treatment course.
  - To anticipate problems and/or critical moments in the treatment adherence and to assist the patient and his/her family to bridge them.
  - To activate the social network and to involve family members in motivating the patient and monitoring correct drug intake.
  - To act as ombudsperson between the patient and Bethania Hospital medical/paramedical team.
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at any time after starting treatment had not collected the drugs for 2 months or more.

The cohort of patients included in the study was followed up until treatment completion. The minimum sample size was calculated at 450 in each group, and was increased by 10% to account for eventual losses and missed interviews.

### Variables and statistical analysis

Baseline data were gathered from all patients by the specially trained interviewers who were fluent in the local vernacular. Clinical information on the disease was obtained from the tuberculosis treatment card; patients' socio-economic status and knowledge and perception of tuberculosis were assessed through semi-structured interviews.

Geographic accessibility was assessed by a score based on travel time to the treatment centre and cost of transport, subdivided into tertiles. Education was measured by grade of schooling (no schooling, primary school, secondary school, and higher education). Knowledge about tuberculosis was measured by questions concerning the name of the disease, mode of transmission, duration of treatment and previous experience with tuberculosis patients.

The impact of counselling was expressed as the relative risk of defaulting in the intervention group compared to that of the control group. The risk ratio was used as the parameter to measure reduction in defaulting. Alpha error was maintained at the 0.05 level. The Kaplan-Meier technique was used for treatment adherence curves. Data were entered in FoxPro-Plus and analysed using SPSS-WIN software.

### Assignment

Newly diagnosed tuberculosis patients were randomly assigned to the intervention group (IG) or the control group (CG). A systematic sampling plan was applied on a calendar basis: the first, third, and *n*th weeks, all eligible patients were assigned to the intervention group, and the other weeks (second, fourth, *n*th<sup>+1</sup> weeks) all eligible patients initiating treatment were assigned to the control group. The first week of assignment (IG or

<sup>†</sup> 2SEH/10EH

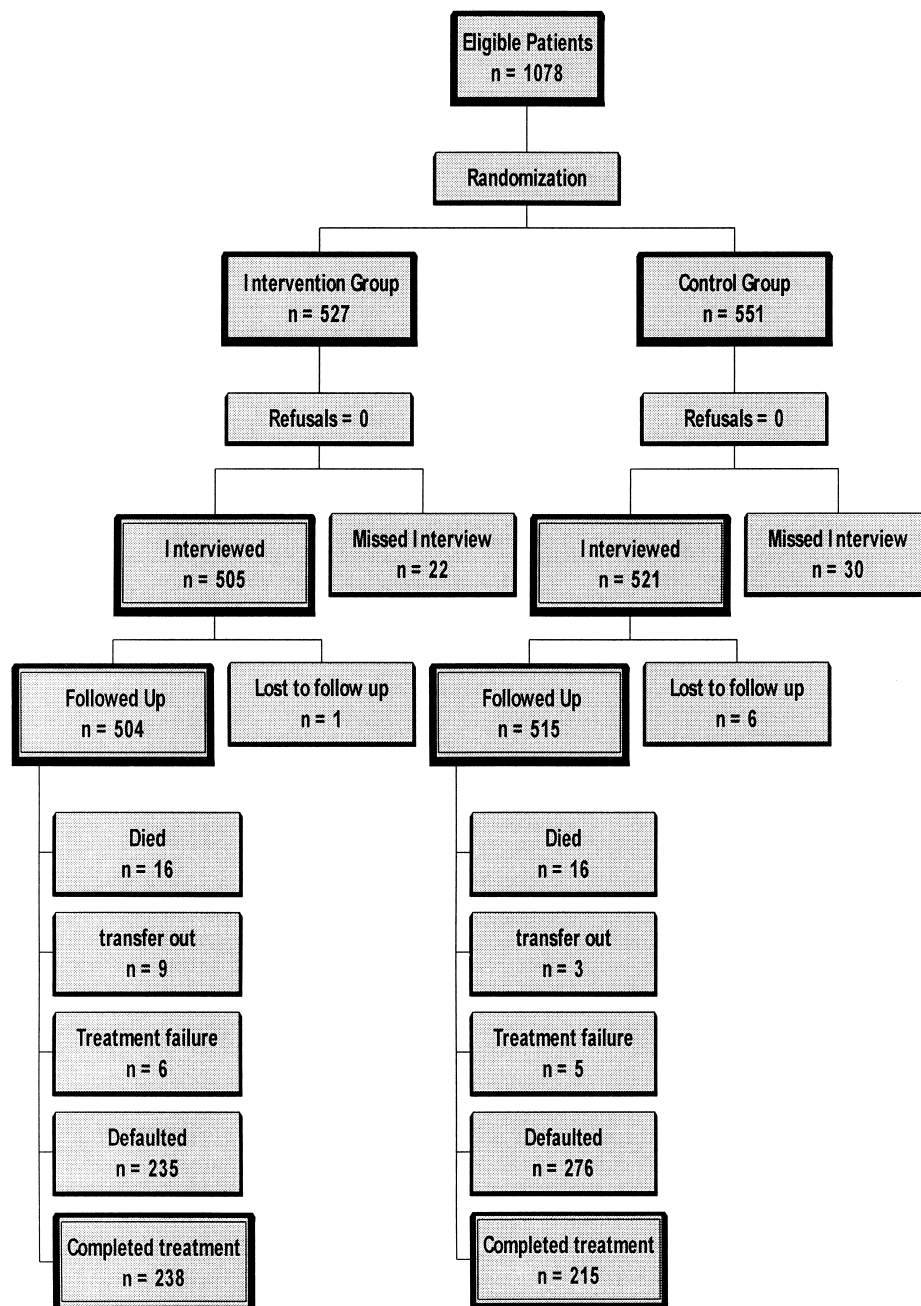
CG) was randomly drawn, and participants did not know which group they belonged to. Informed consent was freely and orally obtained from all study participants. Patients assigned to the IG were interviewed prior to their visit to the counsellor, and interviewers did not know which group patients were assigned to.

A total of 1078 tuberculosis patients diagnosed at BH were eligible for the study. Patients who lost their follow-up cards ( $n = 7$ ) and those for whom an initial interview was not available ( $n = 52$ ) were excluded from the analysis, yielding a total of 1019 cases.

## RESULTS

### Study population

Figure 1 shows the randomisation procedure and follow-up of the patients: 504 patients (49.5%) assigned to the intervention group and 515 (50.5%) to the control group were followed up. Comparison between the IG patients (counselling) and the CG patients (no counselling) showed no significant differences in socio-economic profile, disease profile or initial knowledge and perception. The only exception was that more IG patients had consulted a traditional healer ( $P = 0.028$ , Table 2).



**Figure 1** Flow diagram of randomisation. A randomised trial of the impact of counselling on treatment adherence of tuberculosis patients in Sialkot, Pakistan.

**Table 2** Comparison of baseline characteristics of control group (CG, *n* = 515) and the intervention group (IG, *n* = 504)

Variable	Modality	CG	IG	$\chi^2$ P value
		<i>n</i> (%)	<i>n</i> (%)	
Demographic characteristics				
Age (years)	15–24	157 (31.2)	156 (30.3)	0.82
	25–44	182 (36.1)	185 (35.9)	
	45+	176 (34.9)	163 (31.7)	
Sex	Male	217 (43.1)	209 (40.6)	0.83
Marital status	Single	154 (30.6)	156 (30.3)	0.65
	Married	323 (64.1)	318 (61.7)	
	Divorced/widowed/ Separated	38 (7.5)	30 (5.8)	
Socio-economic profile				
Education	Low	329 (65.3)	303 (58.8)	0.14
	Medium	174 (34.5)	179 (34.8)	
	High	12 (2.4)	22 (4.3)	
Occupation	Low income job	204 (40.5)	198 (38.4)	0.80
	High income job	63 (12.5)	67 (13.0)	
	Jobless	36 (7.1)	27 (5.2)	
	Student	32 (6.3)	36 (7.0)	
	Housewife	180 (35.7)	176 (34.2)	
Number of family members who are economically active in family	$\geq 2$	251 (49.8)	225 (43.7)	0.19
Main breadwinner	Patient	189 (37.5)	190 (36.9)	0.76
Geographic accessibility	Low	175 (34.7)	144 (28.0)	0.12
	Medium	156 (31.0)	177 (34.4)	
	High	184 (36.5)	183 (35.5)	
Tuberculosis category	Pulmonary tuberculosis	455 (90.3)	438 (85.0)	0.49
	Extra-pulmonary tuberculosis	60 (11.9)	66 (12.8)	
Smear result	Positive	252 (50.0)	267 (51.8)	0.18
	Negative	163 (32.3)	133 (25.8)	
	Not available	100 (19.8)	104 (20.2)	
Patient status	New case	420 (83.3)	402 (78.1)	0.17
	Relapse case	19 (3.8)	23 (4.5)	
	Transferred in	23 (4.6)	35 (6.8)	
	Previous defaulter	49 (9.7)	36 (7.0)	
	Previous failure	4 (0.8)	8 (1.6)	
Treatment regimen	8-month standard regimen	200 (39.7)	188 (36.5)	0.74
	8-month re-treatment	36 (7.1)	41 (8.0)	
	12-month regimen	279 (55.4)	275 (53.4)	
Treatment delay	$\geq 1$ month	377 (48.9)	394 (51.1)	0.53
Symptoms at start of treatment	Dyspnoea	416 (82.5)	401 (77.9)	0.63
	Haemoptysis	121 (24.0)	117 (22.7)	0.92
	Weakness	491 (97.4)	484 (94.0)	0.59
Previous health seeking	Hospital	211 (41.9)	208 (40.4)	0.92
	Dispensary	397 (78.8)	384 (74.6)	0.74
	Doctor	386 (76.6)	382 (74.2)	0.76
	Traditional healer	189 (37.5)	219 (42.5)	0.028*
	Spiritual healer	98 (19.4)	117 (22.7)	0.10
Knowledge of tuberculosis	Good (score 3–6)	271 (53.8)	270 (52.4)	0.76

\* Significant difference between intervention and control groups.

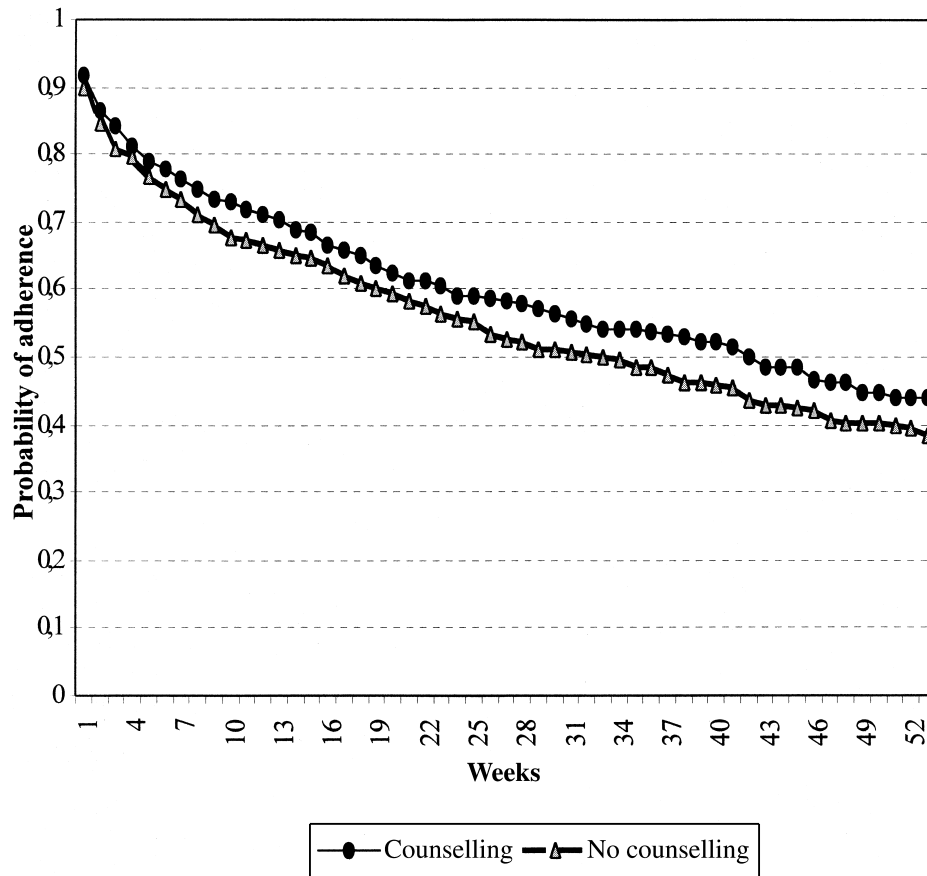
#### *Impact of counselling on treatment adherence*

The default rate in the intervention group was 46.6% (235/504) compared to 53.6% (276/515) in the control group (risk ratio [RR] = 0.87, 95% confidence interval [CI] 0.77–0.98; *P* = 0.030), thus counselling achieved a 13% reduction in defaulting.

Counselled patients adhered better than non-counselled patients right from the start of the treatment (Figure 2). This difference widened slightly as patients advanced in their treatment.

The impact of counselling differed considerably according to certain strata (Table 3). In comparison

to control patients in the same strata, a 40% reduction in defaulting was observed in counselled re-treatment patients, 33% in counselled patients who started treatment less than one month after onset of symptoms, and 28% in counselled ambulatory patients. Defaulting was reduced by 22% in counselled women, especially in housewives (35%), defined as women without a salaried occupation. Counselling reduced defaulting by 22% in patients who initially had a poor knowledge of tuberculosis, and by 33% in those who were not the main breadwinner of the family.



Logrank test p-value=0.032

**Figure 2** Impact of counselling on defaulting from tuberculosis treatment ( $n = 1019$ ).

No differential impact was observed according to age, education, geographic accessibility and clinical profile at treatment enrolment, sputum positivity, or other variables.

Given the differential impact of counselling on ambulatory patients and hospitalised DOT patients, a supplementary analysis was carried out. First, both groups were compared for all available socio-economic factors but no statistical difference could be found. When the impact of counselling in these two strata was assessed, however, it was seen that counselling affected different sub-groups in the two strata (Table 4). In the ambulatory group, a significant impact was mainly seen in the 12-month treatment course, in patients who were not the main breadwinner, in women and, more specifically, in housewives.

In hospitalised DOT patients a significant impact of counselling was observed in re-treatment patients, patients with a short treatment delay and those with an initial poor knowledge of tuberculosis. Among ambulatory patients both re-treatment patients (RR = 0.60) and patients with a short treatment delay (RR = 0.77) also defaulted less when counselled, but the difference was not significant due to the small numbers.

## DISCUSSION

According to Bandura's social-cognitive theory, intensive counselling may strengthen people's belief that they are able to accomplish the behavioural changes necessary to improve their health.<sup>11</sup> In tuberculosis control, one-to-one counselling has been advocated as a strategy that significantly improves treatment adherence.<sup>12</sup> However, only a few intervention studies have so far been carried out that assess the real impact of counselling.

This study shows the independent effect of counselling on defaulting from treatment. Counselling appears to be an effective tool for enhancing adherence to tuberculosis treatment. Its impact was found to be more pronounced in ambulatory patients, in re-treatment patients, in patients with a treatment delay of less than one month, in patients who were not the main breadwinner, in female patients and especially in housewives.

The positive effect of counselling on ambulatory patients is an important finding, as hospitalisation for DOT during the initial phase is not feasible for many patients.

The reasons for the small overall effect on patients who accept hospitalisation for DOT are not clear. A

**Table 3** Impact of counselling on defaulting from tuberculosis treatment in different sub-groups (stratified analysis, crude effects)

Variables	Defaulters/Total		RR	95%CI	$\chi^2$ P value
	Counselled n = 504 (%)	Not counselled n = 515 (%)			
Treatment regimen					
Standard	59/185 (32%)	78/199 (39%)	0.82	0.62–1.07	0.14
Re-treatment*	15/41 (37%)	23/37 (62%)	0.59	0.37–0.95	0.024
12 month	161/278 (58%)	175/279 (63%)	0.92	0.81–1.06	0.25
Treatment delay					
<1 month*	53/127 (42%)	74/121 (61%)	0.68	0.53–0.88	0.002
$\geq$ 1 month	182/377 (48%)	202/394 (51%)	0.94	0.81–1.09	0.41
Hospitalisation for DOT					
No*	108/194 (56%)	122/179 (68%)	0.82	0.70–0.96	0.013
Yes	127/310 (41%)	154/336 (46%)	0.89	0.75–1.07	0.21
Sex					
Male	145/295 (49%)	155/298 (52%)	0.94	0.81–1.11	0.49
Female*	90/209 (43%)	121/217 (56%)	0.77	0.63–0.94	0.009
Occupation					
Jobless	13/27 (38%)	24/36 (67%)	0.72	0.46–1.14	0.14
Housewives*	74/176 (42%)	102/180 (57%)	0.75	0.60–0.92	0.006
Employed	148/301 (49%)	150/299 (50%)	0.98	0.83–1.15	0.81
Main breadwinner					
Patient	104/190 (55%)	108/189 (57%)	0.96	0.80–1.15	0.64
Someone else*	131/314 (42%)	168/326 (52%)	0.81	0.69–0.96	0.013
Knowledge about tuberculosis					
Poor (score 0–2)*	96/224 (43%)	128/230 (56%)	0.77	0.64–0.93	0.006
Good (score 3–6)	139/280 (50%)	148/285 (52%)	0.95	0.80–1.13	0.59

\* Strata for which the impact of counselling was statistically significant.  
RR = risk ratio; 95%CI = 95% confidence interval.

first explanation is a 'spill-over' effect: as control group patients were hospitalised in the same tuberculosis wards as counselled patients, the latter could have influenced the non-counselled patients. Secondly, patients who accept hospitalisation are already strongly motivated, and are thus more able to cope with any problems that arise; their reasons for defaulting are probably not affected by counselling alone.

In the hospitalised DOT group a significant reduction in default rates was observed in re-treatment patients, patients with poor initial knowledge of tuberculosis and those with a short treatment delay. The positive effect on treatment adherence for re-treatment patients is certainly an important finding, as these

patients constitute a high-risk group for drug resistance. Adherence also increased for patients who started treatment soon after the onset of symptoms. Such patients are not psychologically prepared for a diagnosis of tuberculosis and often believe they have only a minor health problem.<sup>13</sup> This explains the higher default rate observed among control group patients with a short delay (61%) compared to those with a longer delay (51%). Counselling helps these patients to understand the disease. Counselling also reduced defaulting in patients who started treatment with a poor knowledge about the disease and its treatment. In this group especially, many misconceptions existed concerning the curability of tuberculosis.

**Table 4** Differential impact of counselling on defaulting from tuberculosis treatment by group of ambulatory and hospitalised DOT patients (stratified analysis, crude effects)

Variables	Defaulters/Total (%)		RR	95%CI	$\chi^2$ P value
	Counselled	Not counselled			
Ambulatory treatment (n = 373)					
12-month regimen	92/163 (56%)	104/145 (72%)	0.79	0.66–0.82	0.005
Main breadwinner someone else	59/121 (49%)	74/112 (66%)	0.74	0.59–0.93	0.008
Women	43/83 (52%)	54/78 (69%)	0.75	0.58–0.97	0.024
Housewives	34/67 (51%)	46/65 (71%)	0.72	0.54–0.95	0.019
Overall effect in ambulatory patients	108/194 (56%)	122/179 (68%)	0.82	0.70–0.96	0.013
Hospitalised DOT patients (n = 646)					
Re-treatment	10/31 (32%)	18/31 (58%)	0.56	0.31–1.00	0.041
Poor knowledge score (0–2)	48/144 (33%)	75/157 (49%)	0.70	0.53–0.93	0.011
Treatment delay <1 month	26/77 (34%)	45/80 (56%)	0.60	0.42–0.87	0.005
Overall effect in DOT patients	127/310 (41%)	154/336 (46%)	0.89	0.75–1.07	0.21

RR = risk ratio; 95%CI = 95% confidence interval.

In ambulatory patients, counselling significantly reduced default rates in the 12-month treatment group, in patients who were not the main breadwinner, in housewives and in female patients. Counselling seems to be more effective in housewives or in patients who are not the main breadwinner. For the others, financial pressure to support the family to a large extent overruled the effect of counselling. This corroborates with previous studies in which the main concern of male patients is the financial burden of the disease: they fear the impact of their treatment on their job performance, loss of income and sometimes even the loss of their job.<sup>14</sup>

In Pakistan as in many other countries, the social and economic consequences of tuberculosis are perceived to be heavier for women than for men.<sup>15-17</sup> Counselling seems to help women to overcome this burden. Counselling also helped to demystify the disease; this was confirmed in a small, in-depth interview study with cured patients and their relatives. Patients found that counselling helped them believe that their tuberculosis was curable if they followed the correct treatment regimen, while relatives felt that it helped them change their negative attitudes towards tuberculosis patients.<sup>18</sup>

#### *Validity of the findings*

At the start of treatment, IG and CG patients presented a similar profile, with the exception of prior consultation of a traditional healer in the case of IG patients. As some previous studies suggest that belief in traditional treatment may negatively affect tuberculosis treatment adherence,<sup>19,20</sup> this eventual bias would underestimate the real impact of counselling rather than invalidating the study results.

Given that patients were unaware of the allocation schedule, it is very unlikely that they purposely chose to consult in a given week and that serious auto-selection occurred. Interviews were carried out before patients were allocated to the groups, and coding was done blindly by the study supervisor. Consequently it is unlikely that major information bias occurred. The authors are aware that their measurement of treatment adherence is limited to only one aspect of adherence behaviour, appointment keeping. In the cultural setting of Pakistan other adherence measures were considered too complex or even unfeasible.

## CONCLUSION

Counselling does not eliminate the need for closely supervised treatment, but it is a useful additional strategy for improving treatment adherence. Supervised treatment and counselling are essentially complementary—they reinforce each other to align health behaviour with medical standards and stimulate treatment compliance.<sup>21</sup> Both methods nevertheless have a different nature. Supervised treatment is a technique of direct control starting from an asymmetrical relationship between supervisor and patient. Counselling, on the

other hand, implies a relationship of inter-mediation between a counsellor and an often stigmatised patient. The informational and motivational impact of counselling has the potential to unleash mechanisms that in the long run reduce the stigmatisation of tuberculosis patients.

In countries like Pakistan, where the implementation of DOT is currently hampered by the absence of a functional health infrastructure at the peripheral level, the combined strategy of counselling and family-based DOT could offer a valid alternative to the immense and urgent problem of tuberculosis control.

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## R É S U M É

**CADRE:** Le département de tuberculose de l'hôpital Bethanie à Sialkot, Pakistan.

**OBJECTIF:** Déterminer dans quelle mesure des conseils intensifs peuvent améliorer l'adhésion au traitement.

**SCHEMA:** Essai d'intervention contrôlé et randomisé chez 1019 adultes atteints de tuberculose, dont 49% furent attribués au groupe d'intervention et 51% au groupe contrôle. Des données de base ont été obtenues par des interviews semi-structurés. Les patients ont été suivis jusqu'à la fin du traitement (guérison, défection, transfert ou décès). L'intervention a comporté des conseils au début du traitement et à chaque visite consécutive pour les patients ambulatoires et chaque semaine pour les patients hospitalisés. Les conseils combinaient l'éducation à la santé avec les stratégies pour renforcer

l'auto-efficacité des patients. Les patients du groupe contrôle bénéficiaient des soins usuels. Le critère de résultat final était la défection au traitement.

**RESULTATS:** Le taux de défection est de 54% dans le groupe contrôle et de 47% dans le groupe d'intervention, le ratio de risque de défection étant de 0,87, ce qui implique une réduction des défections de 13%. L'impact fut plus important chez les femmes, chez les patients en traitement ambulatoire, chez les patients en retraitement, chez les ménagères et les patients qui n'étaient pas la ressource principale du ménage, et chez les patients connaissant mal la maladie ou ayant un bref délai de traitement.

**CONCLUSIONS:** Les conseils intensifs ont eu un impact significatif, quoique limité, sur l'adhésion au traitement.

## R E S U M E N

**MARCO DE REFERENCIA:** Departamento de tuberculosis, Hospital Bethania, Sialkot, Pakistán.

**OBJETIVO:** Determinar si los consejos intensivos pueden mejorar la adhesión al tratamiento.

**MÉTODO:** Intervenciones controladas aleatorias de 1019 pacientes tuberculosos adultos; el 49% formaron el grupo en estudio y el 51%, el grupo control. Los datos básicos se obtuvieron a través de entrevistas estructuradas. Los pacientes fueron seguidos hasta finalizar el tratamiento (curación, abandono, referidos o muertos). La intervención incluyó consejos al comienzo del tratamiento y en cada visita subsiguiente para los pacientes ambulatorios, o bien una vez por semana para los pacientes hospitalizados. Los consejos combinaban la educación sanitaria con las estrategias para fortalecer la auto-

eficacia de los pacientes. Los pacientes del grupo control recibieron la atención habitual. La medida del resultado fue el abandono del tratamiento.

**RESULTADOS:** La tasa de abandono fue del 54% en el grupo control y el 47% en el grupo en estudio, con un riesgo relativo de abandono de 0,87 que implicaba una reducción del abandono del 13%. El impacto fue mayor en las mujeres, en los pacientes tratados ambulatoriamente, en los casos de re-tratamiento, en las amas de casa y en los pacientes que no eran la fuente de ingresos más importante, en los pacientes con un pobre conocimiento de la enfermedad o con una corta demora en el tratamiento.

**CONCLUSIONES:** Los consejos intensivos tienen un impacto significativo aunque limitado en la adhesión al tratamiento.