

## Supplementary materials 1: Additional methods and results

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Supplementary methods. Table 1. Assessment method for derogatory and threatening voices.

Do the nasty voices say any of the following things to you?

	Please select	
They tell me they are going to <i>harm me</i> .	Yes	No
They tell me they are going to <i>harm people I know</i> .	Yes	No
They tell me that <i>other people</i> are going to <i>harm me</i> .	Yes	No
They <i>criticise me</i> , or the way I do things.	Yes	No
They tell me <i>other people are judging me negatively</i> .	Yes	No

Supplementary methods. Missing data.

Participants with greater than 10% missing data on the listening to and believing nasty voices questionnaires were removed from the dataset. Person–mean imputation was used to prorate missing values for the remaining participants on all questionnaires to maximise use of the available data.

Supplementary results. Factor analysis.

*LB–A*

Using Kaiser’s criterion (eigenvalues >1.0), a seven–factor solution was indicated. The scree plot indicated three or four factors before the point of inflection, whilst parallel analysis indicated a six–factor solution. EFA was therefore carried out with three, four and six factors. The highest cumulative variance was explained by the four–factor solution (59%; active listening, passive listening, believing and disregarding DTVs).

A 3–factor CFA model with a higher order factor (combining active listening, passive listening and believing) was carried out in order to assess the appropriateness of calculating a total ‘listening to and believing’ score. Model fit was reasonably good (robust  $\chi^2 = 109.35$ ,  $df = 51$ ,  $p < .0001$ , CFI = 0.98, TLI = 0.98, RMSEA = 0.06 SRMR = 0.05).

A bifactor model with 3 factors and a general factor was carried out to assess the appropriateness of calculating a total score. Model fit was excellent (robust  $\chi^2=57.68$ ,  $df = 42$ ,  $p=.054$ , CFI=1.00, TLI=0.99, RMSEA=0.04, SRMR=0.04). Internal consistency of the total score was good ( $\alpha=0.87$ ) An analysis of variance (ANOVA) indicated that the bifactor model was a significantly better fit than the higher order factor model. The chi square was lower for the bifactor model ( $\chi^2= 26.81$ ) than the higher order factor model (68.57). Unlike the higher order factor model, the bifactor model allows the items across different factors to be related to some degree, which is also expected from the theory (for example active listening would be expected to share some common variance with passive listening). Hence a bifactor model was chosen on both statistical and theoretical grounds.

*LB–R*

Using Kaiser’s criterion (eigenvalues >1.0), an 11–factor solution was indicated. The scree plot indicated three or seven factors before the point of inflection. Parallel analysis indicated a 7–

factor solution. Factor analysis was carried out with three, seven and 11 factors. The 11-factor model was deemed too theoretically complex, with too few items within some factors. The 7-factor solution explained the most cumulative variance (49% versus 38% for the 3-factor solution).

A bifactor model with 7 factors and a general factor was attempted as an alternative to a higher order factor model, however the model did not converge. It is likely that after sub-setting the common variance for the general factor, whatever variance is left for those items does not overlap within the same factor.

## Supplementary results. Table 2. Voice characteristics.

	Part A (N=308)		Part B (N=283)
Data are n (%) unless otherwise stated			
<b>PSYRATS</b>			
Frequency		M=2.62 (SD=1.08)	M=2.59 (SD=1.16)
Duration		M=2.78 (SD=1.08)	M= 2.94 (SD=1.07)
Distress		M=2.54 (SD=1.01)	M= 2.59 (SD=1.10)
<b>Voice content</b>			
'Voices criticise me, or the way I do things'	Yes	286 (93.16)	258 (92.14)
	No	21 (6.84)	22 (7.86)
Voices tell me that other people are judging me negatively	Yes	238 (78.03)	228 (81.43)
	No	67 (21.97)	52 (18.57)
'Voices tell me that <i>other people</i> are going to harm me'	Yes	190 (62.50)	176 (62.63)
	No	114 (37.50)	105 (37.37)
'Voices tell me <i>they</i> are going to harm me'	Yes	168 (55.26)	174 (61.70)
	No		108 (38.30)
'Voices tell me they are going to harm people I know'	Yes	136 (44.74)	118 (42.14)
	No	126 (41.58)	162 (57.86)
<b>Criticisms of the patient's self-concept made by voices</b>			
'You are bad'	Yes	258 (82.77)	226 (81.29)
	No	50 (16.23)	52 (18.71)
'You are worthless'	Yes	244 (79.48)	214 (76.70)
	No	63 (20.52)	65 (23.30)
'You are a failure'	Yes	235 (76.80)	220 (79.14)
	No	71 (23.20)	58 (20.86)
'You are weak'	Yes	221 (72.22)	196 (70.25)
	No	85 (27.78)	83 (29.75)
'You are vulnerable'	Yes	215 (70.72)	190 (68.35)
	No	89 (29.28)	88 (31.65)
'You are unloved'	Yes	211 (69.18)	186 (66.67)
	No	94 (30.82)	93 (33.33)

M=mean, SD=standard deviation.

Supplementary results. Table 3. Factor loadings for four factor EFA solution after item removal for the listening and believing questionnaire (LB-A).

Item		Disregarding nasty voices	Believing nasty voices	Active listening to nasty voices	Passive listening to nasty voices
D1	<i>"What the nasty voices say doesn't matter to me"</i>	0.86			
D2	<i>"I just don't care what the nasty voices say"</i>	0.76			
D3	<i>"When the nasty voices start, I find a way to ignore them"</i>	0.71			
D5	<i>"I avoid getting sucked into the world of the nasty voices"</i>	0.71			
D4	<i>"I tune out the nasty voices"</i>	0.70			
D6	<i>"I can brush off all the negative things that the nasty voices say"</i>	0.59			
B3	<i>"I'm convinced what the nasty voices say is true"</i>		0.97		
B4	<i>"I have a gut feeling that what the nasty voices are saying is true"</i>		0.86		
B2	<i>"The nasty voices are right in what they say"</i>		0.85		
B1	<i>"I believe what the nasty voices say"</i>		0.71		
A2	<i>"I want to hear what the nasty voices are saying when they start"</i>			0.97	
A1	<i>"I want to keep listening to what the nasty voices have to say"</i>			0.71	
A3	<i>"I listen hard to the nasty voices to make sure I've heard what they are saying"</i>			0.68	
A4	<i>"I listen out for the nasty voices"</i>			0.56	
P2	<i>"When the nasty voices start it's almost impossible to ignore what they say"</i>				0.82
P4	<i>"There's nothing I can do but listen to what the nasty voices say"</i>				0.69

P3	"I get sucked into the world of the nasty voices"	0.67
P1	"I take in every word the nasty voices say"	0.60

Supplementary results. Table 4. Standardised CFA factor loadings for the (LB-A).

	Item phrasing	Disregarding	Believing	Active listening	Passive listening
D1	<i>What the nasty voices say doesn't matter to me</i>	0.72			
D2	<i>I just don't care what the nasty voices say</i>	0.72			
D3	<i>When the nasty voices start, I find a way to ignore them</i>	0.69			
D4	<i>I tune out the nasty voices</i>	0.71			
D5	<i>I avoid getting sucked into the world of the nasty voices</i>	0.64			
D6	<i>I can brush off all the negative things that the nasty voices say</i>	0.77			
B1	<i>I believe what the nasty voices say</i>		0.82		
B2	<i>The nasty voices are right in what they say</i>		0.81		
B3	<i>I'm convinced what the nasty voices say is true</i>		0.91		
B4	<i>I have a gut feeling that what the nasty voices are saying is true</i>		0.85		
A1	<i>I want to keep listening to what the nasty voices have to say</i>			0.59	
A2	<i>I want to hear what the nasty voices are saying when they start</i>			0.85	
A3	<i>I listen hard to the nasty voices to make sure I've heard what they are saying</i>			0.84	
A4	<i>I listen out for the nasty voices</i>			0.75	
P1	<i>I take in every word the nasty voices say</i>				0.84
P2	<i>When the nasty voices start it's almost impossible to ignore what they say</i>				0.69
P3	<i>I get sucked into the world of the nasty voices</i>				0.80
P4	<i>There's nothing I can do but listen to what the nasty voices say</i>				0.78

Supplementary results. Table 5. Correlation matrix between CFA factor scores for the LB-A.

	Believing	Active listening	Passive listening	Disregarding
Believing	1.00			
Active listening	0.47	1.00		
Passive listening	0.78	0.59	1.00	
Disregarding	-0.56	0.07	-0.55	1.00

Supplementary results. Table 6. Internal consistency of the LB-A.

	Cronbach's $\alpha$
Believing	0.88
Active listening	0.79
Passive listening	0.81
Disregarding	0.80

Supplementary results. Table 7. Regressions between listening to and believing DTVs and distress, whilst controlling for voice frequency.

Depression, whilst controlling for voice frequency <i>df</i> = 2, 277					
	$\beta$	$\beta^a$	$R^2$	<i>F</i>	$p^b$
Believing	0.86	0.43	0.22	40.74	<.0001
Active listening	0.65	0.30	0.13	21.36	<.001
Passive listening	1.06	0.49	0.27	53.5	<.001
Anxiety, whilst controlling for voice frequency <i>df</i> = 2, 277					
Believing	0.79	0.46	0.23	42.65	<.001
Active listening	0.73	0.40	0.18	30.57	<.0001
Passive listening	0.95	0.51	0.28	54.52	<.0001
Voice related distress, whilst controlling for voice frequency <i>df</i> =2,280					
Believing	0.06	0.20	0.10	15.93	<.0001
Active listening	0.05	0.13	0.07	11.96	0.0026
Passive listening	0.10	0.31	0.15	26.13	<.0001

$\beta^a$ =standardised beta coefficient.  $p^b$ =corrected for multiple comparisons using the holm method.

Supplementary results. Table 8. Simple regressions between listening to and believing DTVs and distress, after controlling for four diagnostic groups (borderline personality disorder, depressive episode/disorder, psychosis and schizophrenia)

Depression <i>df</i> =5,274					
	$\beta$	$\beta^a$	<i>Adjusted-R<sup>2</sup></i>	<i>F</i>	$p^b$
Believing	0.80	0.40	0.23	17.87	<0.001
Active listening	0.68	0.31	0.20	17.02	<0.001
Passive listening	1.00	0.46	0.30	24.44	<0.001
Anxiety <i>df</i> =5,274					
Believing	0.73	0.43	0.23	17.38	<0.001
Active listening	0.75	0.41	0.24	18.76	<0.001
Passive listening	0.89	0.48	0.29	23.64	<0.001
Voice related distress <i>df</i> =5,277					
Believing	0.05	0.18	0.04	3.11	<0.01
Active listening	0.05	0.14	0.03	2.63	<0.05
Passive listening	0.11	0.33	0.11	7.94	<0.001

$\beta^a$ =standardised beta coefficient.  $p^b$ =corrected for multiple comparisons using the holm method.

Supplementary results. Table 9. Regression parameters for the robust maximum likelihood estimate model and regularised lasso models for individual items from the listening and believing questionnaire – reasoning (LB-R).

	Predictors of the 'Believing' latent variable					Predictors of the 'Active Listening' latent variable					Predictors of the 'Passive Listening' latent variable				
	Robust maximum likelihood estimate					Robust maximum likelihood estimate					Robust maximum likelihood estimate				
Item phrasing	Est.	SE	z-value	p value	Lasso model's estimate	Est.	SE	z-value	p value	Lasso model's estimate	Est.	SE	z-value	p value	Lasso model's estimate
<i>They've worn me down, so I have to listen.</i>	-0.002	0.03	-0.07	0.94	0.000	0.030	0.04	0.78	0.43	0.010	0.106	0.04	2.64	0.01	0.095
<i>Because I feel defeated by them.</i>	0.087	0.04	2.27	0.02	0.072	-0.059	0.04	-1.49	0.14	-0.024	0.013	0.04	0.30	0.77	0.017
<i>I feel low and my guard is down.</i>	-0.024	0.03	-0.72	0.47	0.000	0.015	0.04	0.41	0.68	0.000	0.034	0.04	0.96	0.34	0.023
<i>I deserve the things they say.</i>	0.089	0.03	2.85	0.00	0.072	0.016	0.04	0.42	0.67	0.000	0.052	0.03	1.57	0.12	0.015
<i>I don't believe in myself, so I get sucked into what they say.</i>	0.011	0.04	0.31	0.76	0.021	0.007	0.04	0.18	0.85	0.000	-0.059	0.04	-1.58	0.11	-0.036
<i>They are picking on my weak spots – things I'm already unsure about.</i>	-0.013	0.03	-0.45	0.66	0.000	-0.050	0.04	-1.34	0.18	-0.022	-0.017	0.03	-0.52	0.60	0.000
<i>What they are saying confirms that I really am a bad person.</i>	0.003	0.03	0.09	0.93	0.009	-0.001	0.03	-0.04	0.97	0.000	-0.032	0.04	-0.92	0.36	-0.005
<i>I don't have the confidence to</i>	0.030	0.04	0.82	0.41	0.021	-0.036	0.04	-0.88	0.38	-0.002	-0.015	0.04	-0.39	0.70	0.000

<i>question the nasty voices.</i>															
<i>I don't have the confidence to ignore the nasty voices.</i>	0.051	0.03	1.53	0.13	0.036	0.064	0.04	1.75	0.08	0.033	0.067	0.04	1.74	0.08	0.048
<i>I don't have the confidence to ask for other people's opinions, so I only have the nasty voices to guide me.</i>	0.034	0.03	1.12	0.26	0.019	0.057	0.03	1.72	0.09	0.015	0.042	0.04	1.18	0.24	0.007
<i>I don't have the confidence to trust my own mind.</i>	0.005	0.03	0.16	0.87	0.004	-0.030	0.04	-0.76	0.45	-0.016	0.025	0.03	0.71	0.47	0.010
<i>I'm tired so I can't think logically and end up believing them.</i>	0.011	0.03	0.36	0.72	0.009	-0.058	0.03	-1.73	0.08	-0.027	0.047	0.03	1.38	0.17	0.047
<i>I don't have the energy to do anything but listen to them.</i>	0.003	0.04	0.08	0.93	0.000	0.072	0.04	1.79	0.07	0.036	0.006	0.04	0.16	0.87	0.000
<i>I don't have the mental energy to keep fighting what they say.</i>	0.002	0.04	0.04	0.97	0.000	-0.021	0.04	-0.58	0.56	-0.003	-0.006	0.04	-0.17	0.86	0.000
<i>I spend time by myself so there are no distractions from what they say.</i>	0.089	0.04	2.42	0.02	0.054	0.003	0.04	0.08	0.94	0.000	0.020	0.04	0.54	0.59	0.016
<i>I spend time by myself so there's nothing else to listen to.</i>	-0.003	0.04	-0.08	0.94	0.000	-0.036	0.04	-0.91	0.36	0.000	0.026	0.04	0.66	0.51	0.017
<i>I spend time by myself so I have time to listen to them.</i>	-0.045	0.04	-1.21	0.23	-0.016	0.058	0.04	1.60	0.11	0.027	0.001	0.04	0.04	0.97	0.000

<i>I spend time by myself so I can't check with other people whether I should believe the voices or not.</i>	-0.024	0.03	-0.72	0.47	-0.002	-0.012	0.04	-0.32	0.75	0.000	-0.054	0.03	-1.87	0.06	-0.028
<i>I'm so anxious that I can't do anything but listen.</i>	0.035	0.03	1.13	0.26	0.027	0.033	0.03	0.98	0.33	0.012	0.076	0.03	2.19	0.03	0.057
<i>Otherwise they might catch me by surprise, and I'll panic.</i>	-0.005	0.03	-0.17	0.87	0.000	0.025	0.04	0.70	0.48	0.011	-0.003	0.03	-0.09	0.93	0.000
<i>I want to be ready to deal with them.</i>	0.029	0.03	0.89	0.37	0.006	0.019	0.03	0.57	0.57	0.004	0.054	0.03	1.66	0.10	0.033
<i>It will help me to prepare an escape from the voices' threats.</i>	0.019	0.04	0.51	0.61	0.008	-0.013	0.04	-0.36	0.72	0.000	0.014	0.04	0.33	0.74	0.009
<i>I need to stand up for myself, so I fight them.</i>	-0.033	0.03	-1.20	0.23	-0.024	-0.013	0.03	-0.42	0.68	-0.007	0.007	0.03	0.26	0.80	0.000
<i>I might be able to change their mind.</i>	-0.044	0.03	-1.48	0.14	-0.034	0.017	0.04	0.44	0.66	0.000	0.004	0.03	0.13	0.90	0.000
<i>What they are saying confirms that people really are out to get me.</i>	-0.012	0.03	-0.35	0.72	0.000	0.020	0.04	0.56	0.58	0.022	-0.035	0.03	-1.03	0.30	-0.006
<i>Because it's my responsibility to stop them hurting other people.</i>	0.017	0.02	0.79	0.43	0.010	-0.008	0.03	-0.27	0.79	0.000	0.008	0.03	0.27	0.79	0.000
<i>I might be able to find a solution to the voices' anger or negativity.</i>	-0.063	0.03	-2.37	0.02	-0.039	-0.018	0.03	-0.62	0.53	0.000	-0.007	0.03	-0.25	0.80	0.000
<i>I don't want to let them win, so I listen to fight them.</i>	0.029	0.03	1.07	0.28	0.007	0.056	0.03	1.89	0.06	0.015	0.034	0.03	1.18	0.24	0.018

<i>I feel suspicious of everyone, so I want to know what the voices are saying.</i>	0.017	0.03	0.59	0.55	0.014	0.087	0.03	2.78	0.01	0.075	-0.019	0.03	-0.66	0.51	-0.013
<i>It might help me understand them, so I can calm them down.</i>	0.042	0.03	1.44	0.15	0.030	-0.019	0.04	-0.52	0.61	0.000	-0.082	0.03	-2.75	0.01	-0.061
<i>It might help me work out who the voices are.</i>	-0.013	0.03	-0.41	0.68	-0.012	0.019	0.03	0.54	0.59	0.007	0.031	0.04	0.81	0.42	0.014
<i>It might help me understand what is happening.</i>	-0.004	0.04	-0.10	0.92	0.000	-0.068	0.04	-1.63	0.10	-0.032	-0.029	0.04	-0.68	0.50	-0.002
<i>It might help me understand how I'm hearing voices when other people can't hear them.</i>	-0.048	0.04	-1.33	0.18	-0.032	0.062	0.03	1.79	0.07	0.017	-0.023	0.03	-0.68	0.50	-0.014
<i>It might help me work out why they're picking on me.</i>	-0.008	0.03	-0.23	0.82	0.000	-0.038	0.04	-1.04	0.30	-0.004	0.010	0.03	0.32	0.75	0.000
<i>I want to know why they are talking to me.</i>	-0.037	0.03	-1.08	0.28	0.000	-0.037	0.03	-1.09	0.27	-0.010	0.011	0.03	0.35	0.72	0.027
<i>It might help to work out where they are coming from.</i>	0.014	0.03	0.43	0.67	0.000	-0.043	0.04	-1.04	0.30	-0.013	-0.027	0.03	-0.82	0.41	-0.007
<i>It might help me work out what they could do to me.</i>	0.016	0.03	0.50	0.62	0.002	0.063	0.04	1.65	0.10	0.022	0.027	0.03	0.78	0.44	0.000
<i>I want to work out what helps and what doesn't.</i>	0.001	0.03	0.02	0.98	0.000	0.008	0.03	0.26	0.80	0.000	-0.034	0.03	-1.14	0.25	-0.031
<i>The whole experience fascinates me.</i>	-0.057	0.03	-2.20	0.03	-0.033	-0.009	0.03	-0.29	0.77	0.006	-0.056	0.03	-2.01	0.04	-0.030
<i>I'm trying to figure out why this is happening.</i>	0.009	0.03	0.30	0.76	0.000	0.018	0.04	0.47	0.64	0.000	0.070	0.03	2.20	0.03	0.032

<i>I want to work out why they are saying these particular things.</i>	0.034	0.04	0.97	0.33	0.008	0.077	0.04	1.91	0.06	0.059	-0.012	0.04	-0.33	0.74	0.000
<i>They sound so real.</i>	0.002	0.03	0.07	0.94	0.001	0.004	0.04	0.10	0.92	0.000	0.087	0.03	2.56	0.01	0.059
<i>I'm not familiar with them yet so can't tune them out.</i>	0.022	0.03	0.78	0.44	0.009	-0.027	0.03	-0.97	0.33	-0.005	-0.036	0.03	-1.39	0.16	-0.008
<i>They're unpredictable and come out of nowhere.</i>	-0.038	0.03	-1.52	0.13	-0.022	0.039	0.03	1.35	0.18	0.010	0.064	0.03	2.22	0.03	0.035
<i>Because other things in my life support what the voice says.</i>	0.131	0.03	4.72	0.00	0.107	0.030	0.03	1.10	0.27	0.003	0.059	0.03	2.13	0.03	0.031
<i>I experience visions which back up what the voices say.</i>	-0.014	0.03	-0.54	0.59	0.000	-0.049	0.03	-1.53	0.12	-0.031	0.048	0.03	1.57	0.12	0.040
<i>I experience unusual smells which back up what the voices say.</i>	0.010	0.03	0.35	0.72	0.004	-0.027	0.03	-1.04	0.30	-0.008	0.006	0.03	0.22	0.82	0.000
<i>They sound so unusual or strange.</i>	-0.012	0.03	-0.42	0.68	-0.009	0.032	0.03	1.01	0.31	0.016	-0.067	0.03	-2.29	0.02	-0.035
<i>They are just like real people.</i>	0.029	0.03	0.95	0.34	0.005	0.032	0.03	0.93	0.35	0.007	0.041	0.03	1.32	0.19	0.027
<i>A second voice backs up the first voice.</i>	0.011	0.02	0.48	0.63	0.015	0.007	0.02	0.28	0.78	0.003	-0.033	0.02	-1.51	0.13	-0.019
<i>If I don't listen they get louder.</i>	-0.045	0.03	-1.52	0.13	-0.025	-0.031	0.04	-0.88	0.38	-0.021	-0.048	0.03	-1.60	0.11	-0.021
<i>They keep repeating what they say to make me listen.</i>	-0.027	0.04	-0.73	0.46	-0.003	-0.006	0.04	-0.15	0.88	-0.005	0.059	0.04	1.62	0.11	0.032
<i>They're intelligent and trick me into listening.</i>	-0.026	0.03	-0.92	0.36	-0.005	-0.037	0.03	-1.17	0.24	-0.024	0.014	0.03	0.46	0.65	0.018
<i>They wait until I'm at my weakest before attacking me.</i>	-0.009	0.02	-0.38	0.70	-0.006	-0.013	0.03	-0.42	0.67	-0.003	0.002	0.02	0.09	0.93	0.000

<i>They scare me with horrible sounds.</i>	0.057	0.02	2.41	0.02	0.034	0.001	0.03	0.05	0.96	0.000	-0.006	0.03	-0.25	0.80	0.000
<i>They are putting on a performance for me.</i>	-0.012	0.03	-0.48	0.63	-0.011	0.003	0.03	0.09	0.93	0.000	0.025	0.03	0.83	0.41	0.014
<i>They are whispering (or very quiet) so I have to listen harder to hear what they are saying.</i>	-0.001	0.03	-0.04	0.97	0.000	0.029	0.03	1.05	0.29	0.020	0.026	0.02	1.09	0.27	0.009
<i>They tell a convincing story that sucks you in to their world.</i>	0.078	0.03	2.74	0.01	0.056	0.046	0.03	1.71	0.09	0.042	0.100	0.03	2.88	0.00	0.071
<i>They lull me into a false sense of security by saying nice things, so I start to trust them and listen to what they say.</i>	-0.049	0.03	-1.88	0.06	-0.045	0.055	0.03	1.72	0.08	0.029	0.037	0.03	1.27	0.21	0.021
<i>They sound unusual so they capture my attention.</i>	-0.003	0.03	-0.10	0.92	0.000	-0.043	0.04	-1.16	0.24	-0.015	0.007	0.03	0.20	0.84	0.000
<i>They say things about me that I wouldn't expect anyone else to know.</i>	0.028	0.02	1.16	0.25	0.025	-0.024	0.03	-0.90	0.37	-0.009	-0.063	0.03	-2.29	0.02	-0.037
<i>I hear the voice of someone I know, and I usually believe that person so I'm more likely to be convinced by what they say.</i>	0.070	0.04	1.79	0.07	0.042	-0.053	0.04	-1.40	0.16	-0.002	-0.082	0.04	-1.95	0.05	-0.036

<i>I hear the voice of someone I know, and I want to work out why they are saying horrible things when they are usually nice.</i>	-0.015	0.04	-0.42	0.68	-0.006	0.063	0.04	1.47	0.14	0.022	0.096	0.04	2.69	0.01	0.052
<i>I hear the voice of someone I know, and it sounds exactly the same as them, so it would be odd not to listen.</i>	-0.001	0.04	-0.03	0.98	0.000	0.014	0.04	0.36	0.72	0.000	0.009	0.04	0.25	0.81	0.000
<i>I hear the voice of someone I know, and I don't trust them, so I need to keep listening.</i>	-0.088	0.03	-2.92	0.00	-0.065	-0.010	0.03	-0.31	0.76	0.000	-0.032	0.03	-1.12	0.26	-0.019
<i>I can also imagine what they look like and that makes me get sucked into what they're saying.</i>	0.016	0.03	0.56	0.57	0.014	0.028	0.03	0.91	0.36	0.022	-0.031	0.03	-1.07	0.29	-0.015
<i>It's a special talent to hear things that other people can't.</i>	-0.022	0.03	-0.82	0.41	-0.009	0.016	0.03	0.54	0.59	0.014	-0.010	0.03	-0.34	0.73	0.000
<i>Listening to voices is important to my spiritual or cultural beliefs.</i>	0.004	0.03	0.11	0.91	0.000	0.045	0.04	1.20	0.23	0.028	0.043	0.04	1.13	0.26	0.015
<i>Listening will make me smart, because the voices are smart.</i>	0.098	0.04	2.25	0.02	0.073	0.058	0.05	1.28	0.20	0.050	-0.063	0.05	-1.39	0.16	-0.030
<i>I don't have the concentration to do anything else but listen.</i>	-0.002	0.03	-0.06	0.95	0.000	-0.010	0.03	-0.29	0.77	0.000	0.067	0.03	2.24	0.02	0.050
<i>Even though they are nasty, they also give me a bit of company.</i>	-0.008	0.03	-0.24	0.81	0.000	-0.025	0.03	-0.77	0.44	0.000	-0.029	0.04	-0.79	0.43	0.000

<i>Listening to the voice will help me to learn about myself.</i>	-0.004	0.04	-0.12	0.90	0.000	0.150	0.04	3.61	0.00	0.104	0.041	0.04	1.06	0.29	0.010
<i>The voice knows more than I do so I might learn something.</i>	0.095	0.03	2.82	0.00	0.075	0.025	0.04	0.64	0.52	0.000	0.084	0.04	2.30	0.02	0.050
<i>If I don't listen, they'll say nastier things.</i>	0.039	0.03	1.28	0.20	0.020	-0.033	0.03	-1.16	0.24	-0.016	-0.048	0.03	-1.54	0.12	-0.022

<sup>a</sup> Indicates omitted items based on regularised paths <0.01 across all three latent variables.

Supplementary results. Table 10. Factor loadings for seven factor EFA solution after item removal for the LB-R.

	Worn down	Understand	Learn	Alone	Attention	Real people	I know
I don't have the confidence to ignore the nasty voices	0.81						
I don't believe in myself, so I get sucked into what they say.	0.74						
I don't have the confidence to question the nasty voices.	0.71						
I don't have the confidence to trust my own mind.	0.67						
Because I feel defeated by them.	0.66						
I deserve the things they say.	0.64						
They've worn me down, so I have to listen.	0.59						
I don't have the confidence to ask for other people's opinions, so I only have the nasty voices to guide me.	0.58						
I don't have the energy to do anything but listen to them.	0.55						
I'm so anxious that I can't do anything but listen.	0.5						
I feel low and my guard is down	0.39						
I want to know why they are talking to me.		0.77					
I want to work out why they are saying these particular things.		0.77					
I'm trying to figure out why this is happening.		0.72					
It might help me work out who the voices are.		0.65					
It might help me understand how I'm hearing voices when other people can't hear them.		0.65					
It might help me work out what they could do to me.		0.63					
I want to be ready to deal with them.		0.4					
I don't want to let them win, so I listen to fight them.		0.38					
Listening to the voice will help me to learn about myself.			0.74				
The voice knows more than I do so I might learn something			0.73				
Listening will make me smart, because the voices are smart.			0.67				
Listening to voices is important to my spiritual or cultural beliefs.			0.65				
It's a special talent to hear things that other people can't.			0.49				

I spend time by myself so there's nothing else to listen to.	0.89	
I spend time by myself so there are no distractions from what they say.	0.82	
I spend time by myself so I have time to listen to them.	0.72	
They are putting on a performance for me.	0.75	
They sound so unusual or strange.	0.52	
They scare me with horrible sounds.	0.5	
They lull me into a false sense of security by saying nice things, so I start to trust them and listen to what they say.	0.41	
They are whispering (or very quiet) so I have to listen harder to hear what they are saying.	0.39	
They're intelligent and trick me into listening.	0.37	
They tell a convincing story that sucks you in to their world.	0.37	
They are just like real people.		0.78
They sound so real.		0.58
A second voice backs up the first voice.		0.45
They're unpredictable and come out of no-where.		0.35
I hear the voice of someone I know, and I want to work out why they are saying horrible things when they are usually nice.		0.88
I hear the voice of someone I know, and I usually believe that person so I'm more likely to be convinced by what they say.		0.78

Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention, Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

### Supplementary results. Table 11. Correlations between seven factors of the LB-R after EFA.

	1	2	3	4	5	6	7
<b>Understand (1)</b>	1.00						
<b>Worn down (2)</b>	0.30	1.00					
<b>Learn (3)</b>	0.29	0.08	1.00				
<b>Alone (4)</b>	0.32	0.48	0.14	1.00			
<b>Attention (5)</b>	0.43	0.28	0.21	0.30	1.00		
<b>Real people (6)</b>	0.30	0.36	0.11	0.20	0.23	1.00	
<b>I know (7)</b>	0.28	0.02	0.31	0.11	0.21	0.16	1.00

Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention,

Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

Supplementary results. Table 12. Standardised CFA factor loadings for the LB-R.

Item code	Item phrasing	Understand	Worn down	Learn	Attention	Real people	Alone	I know
U3	<i>It might help me work out what they could do to me.</i>	0.73						
U1	<i>I'm trying to figure out why this is happening</i>	0.71						
U2	<i>It might help me work out who the voices are.</i>	0.66						
U4	<i>I want to be ready to deal with them</i>	0.61						
U5	<i>I don't want to let them win, so I listen to fight them</i>	0.60						
W9	<i>I don't have the energy to do anything but listen to them</i>		0.77					
W3	<i>I'm so anxious that I can't do anything but listen</i>		0.77					
W2	<i>Because I feel defeated by them.</i>		0.74					
W5	<i>I don't have the confidence to ignore the nasty voices.</i>		0.74					
W1	<i>They've worn me down, so I have to listen</i>		0.73					
W6	<i>I don't have the confidence to trust my own mind.</i>		0.64					
L2	<i>The voice knows more than I do so I might learn something.</i>			0.79				
L1	<i>Listening to the voice will help me to learn about myself.</i>			0.77				
L3	<i>Listening will make me smart, because the voices are smart.</i>			0.76				
L4	<i>Listening to voices is important to my spiritual or cultural beliefs.</i>			0.47				
S4	<i>They're intelligent and trick me into listening.</i>				0.68			
S5	<i>They tell a convincing story that sucks you in to their world.</i>				0.64			
S1	<i>They are putting on a performance for me.</i>				0.57			
S3	<i>They lull me into a false sense of security by saying nice things, so I start to trust them and listen to what they say.</i>				0.57			
S2	<i>They are whispering (or very quiet) so I have to listen harder to hear what they are saying.</i>				0.49			
R2	<i>They sound so real.</i>					0.88		
R1	<i>They are just like real people.</i>					0.72		

R3	<i>They're unpredictable and come out of no-where.</i>	0.49
A3	<i>I spend time by myself so there are no distractions from what they say.</i>	0.88
A1	<i>I spend time by myself so there's nothing else to listen to.</i>	0.81
A2	<i>I spend time by myself so I have time to listen to them.</i>	0.73
I2	<i>I hear the voice of someone I know, and I usually believe that person so I'm more likely to be convinced by what they say.</i>	0.88
I1	<i>I hear the voice of someone I know, and I want to work out why they are saying horrible things when they are usually nice.</i>	0.76

Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention, Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

### Supplementary results. Table 13. Correlations between seven factors of the LB-R after CFA.

	1	2	3	4	5	6	7
<b>Understand (1)</b>	1.00						
<b>Worn down (2)</b>	0.66	1.00					
<b>Learn (3)</b>	0.61	0.46	1.00				
<b>Alone (4)</b>	0.54	0.72	0.43	1.00			
<b>Attention (5)</b>	0.70	0.60	0.76	0.53	1.00		
<b>Real people (6)</b>	0.65	0.71	0.37	0.53	0.62	1.00	
<b>I know (7)</b>	0.43	0.23	0.35	0.22	0.50	0.31	1.00

Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention, Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

### Supplementary results. Table 14. Internal consistency of the LB-R.

	Cronbach's $\alpha$
<b>Understand (1)</b>	0.80
<b>Worn down (2)</b>	0.88
<b>Learn (3)</b>	0.81
<b>Alone (4)</b>	0.85
<b>Attention (5)</b>	0.73
<b>Real people (6)</b>	0.71
<b>I know (7)</b>	0.80

Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention, Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

Supplementary results. Table 15. Simple regressions between factor scores for seven reasoning subscales (LB–R) and disregarding (LB–A).

	Disregarding			
	$\beta$	$R^2$	$F^a$	$p^b$
Understand	-0.08	0.02	4.94	0.11
Worn down	-0.31	0.32	127.80	< 0.0001
Learn	-0.01	0.00	0.09	0.76
Attention	-0.09	0.02	4.13	0.13
Real people	-0.27	0.20	67.44	< 0.0001
Alone	-0.11	0.04	12.60	0.023
I know	-0.04	0.01	2.05	0.31

<sup>a</sup> degrees of freedom for all F statistics =1,274, <sup>b</sup>p values adjusted using the holm method. Understand=to better understand the voices to deal with the threat, worn down= being so worn down it is difficult to resist the voice experience, Learn= I'll learn something insightful, Attention= voices use strategies that capture attention, Real people= the voices are just like real people, Alone= I'm alone so have time and space to listen, I know= the voices are of people I know.

Supplementary results. Final SEM between factor scores for reasoning subscales (LB–R) and disregarding (LB–A).

Based on the simple regressions, only the reasoning factors which significantly predicted disregarding were entered into the SEM (worn down, real people and alone). After the backwards elimination worn down was the only significant predictor of disregarding ( $\beta = -.34$ ,  $SE=0.05$ ,  $p<0.0001$ ).