

Cognitive behaviour therapy for white coat hypertension-causing latrophobia in adults: randomized controlled trial

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Abstract

Objective: To see whether cognitive behaviour therapy improves blood pressure-oriented latrophobia in adults to manage white coat hypertension

Methods: Present study was conducted at the Kidney Centre, Sialkot, Pakistan from December 2017 to November 2018, and comprised latrophobic attendees of kidney patients without initially exploring the reason of phobia. Either of the intervention or control group was allotted, randomly. The intervention group underwent 20 weekly sessions of the therapy. Pre- and posttherapy systolic blood pressure (at home and medical clinic) of both the groups was recorded alongside self-perceived level of phobia in subjects of only treatment group.

Results: Of 30 subjects of intervention group, 22 (73.3%) completed the therapy. However, control (N = 30) stayed intact. Age statistics were, as: M = 38.2, SD = 11.8, range 20-56 years with male predominance. Moreover, 12 (54.4%) or 20 (90.9%) of them reported severe latrophobia or onset of phobia after childhood, respectively. After therapy, 17 (77.3%) subjects communicated improvement in fear. A significant decline in mean systolic blood pressure was noted in pre- to posttherapy record (149 vs. 142 mm of Hg, respectively; $t(21) = 8.829$, $p = 0.0001$).

Conclusion: Generally, cognitive behaviour therapy improves blood pressure-oriented latrophobia in adults.

Keywords: White coat hypertension, Cognitive behaviour therapy, Phobia, Randomised controlled trial.

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Introduction

Latrophobia is characterised by persistent and irrational fear of medical doctor/hospital.¹ It manifests certain adverse medical impacts, such as white coat hypertension (WCH), in the sufferer. The WCH is elevated systolic blood pressure (SBP) observed by white coat-wearing medical doctor in a clinical setting. The underlying blood pressure-oriented latrophobia (BPOL) favours avoidance attitude towards medical care, especially in the presence of impersonal nature² of the clinician. Such deviant approach deprives the victim of WCH from the benefits of early diagnosis of fatal diseases and their management, and may lead to premature death.³ Unfortunately, WCH exists in 30% global hypertensive population.^{4,5}

A person is vulnerable to the phobia if he/she has pre-existing anxiety disorder,⁶ phobic parenthood, or exposure to bad news of BP-oriented diagnosis in a beloved one during the first 30 years of life. Later on, it is reinforced by

psychological, circumstantial, and social determinants.

Medication,³ hypnotherapy,⁷ or cognitive behaviour therapy (CBT) can help to control BPOL in adults for WCH management. However, patient-friendly CBT is the first choice of the practitioners as it switches the behaviour from flight to fight mood via fear-freeze response.^{2,8,9} Here, identification of the negative thinking is followed by cognitive reconstructing (CR) segment. The CR transforms negative thinking present at the root of aberrant behaviour to positive one using behavioural interventions, like frequent exposure to fear-causing situation, and verbal tools.

Although, CBT has plenty of success stories for mental problems like obsessive compulsive disorder (OCD)¹⁰ in Pakistani culture. However, online literature is devoid of any published paper on CBT-BPOL-WCH association. To cover the gap, present study was planned to see whether culturally adapted CBT improves BPOL in adults to manage WCH. The findings of the study will help in WCH management via CBT-mediated BPOL improvement after validation.

Subjects and Methods

The randomised controlled trial (RCT) was conducted at the Kidney Centre, Sialkot, Pakistan, from December 2017 to November 2018. After getting permission from the

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institutional review board, a sample size of 30 subjects was set (within recommended range 24–50 in a pilot study)^{11,12} for each of the intervention and control i.e. psychological placebo group.

A question, “Are you a victim of latrophobia?”, was put to adult attendees of patients at the Centre. On positive response, the 2nd question, “Are you sufferer of WCH?”, was administered using purposive sampling technique. Adult, educated (≥ 10 years), Sialkot residents who consented to participate were recruited. Those who were normotensive, on psychopharmacological medication, had any other type of latrophobia, or patients of intellectual/organic cognitive impairment were excluded. A biostatistician (irrelevant to conduct/outcome of the study) generated a random sequence and allotted the group (intervention or control) to the participants, accordingly. The demographics including gender and age of both the groups were documented before SBP recording (at home and hospital) using mercury sphygmomanometer.

The intervention group was asked to self-report the severity level of latrophobia through a query, “How your anxiety would be if the doctor is about to check your BP?”

A predesigned scheme of culturally-adapted CBT for BPOL was applied in the light of practical experience,^{12,13} and discussions with psycho-sociologists.

The intervention was of 20 sessions of about 70 min each at the interval of a week.¹⁴ The participants were trained to remain relaxed and mindful of exposure to imaginary BP check-up by a doctor. The cognitive restructuring followed 3 steps: identification of automatic thoughts (ATs) like ‘doctor always reports elevated BP’; revision of ATs; and incorporation of functional thoughts, like ‘doctor is my well-wisher’.¹¹ The incorporation was materialised using different themes, like desire for economic well-being. The last 7 sessions were conducted to decrease the severity level of BPOL by developing self-confidence.

In post-therapy assessment, BP at home and hospital of the cases was observed before knowing the severity level of the phobia. Finally, they were asked to mark a segment of CBT from a list that they liked the most.

Data was analysed using SPSS 17. The association between severe BPOL and baseline characteristics was assessed using chi-squared test. Paired sample t test was used on normal distribution to compare the mean values of SBP of the groups. $P \leq .05$ was taken as statistically significant.

Results

Of 3341 adult attendees, 384 (11.5%) announced

Table-1: Demographic variables of subjects with severe BPOL in the intervention group (n = 22).

Variable	Severe BPOL n (%)	Risk estimates RR; 95% CI	χ^2	p-value
Gender				
Male	9 (47.4)	0.747; 0.30 - 0.76	-	0.22
Female	3 (100.0)			
Age (years)				
18-25	0 (0.0)	-	-	0.003
>25	12 (75.0)			
Education (years)				
Non graduate	3 (30.0)	2.800; 0.969 - 8.087	4.475	0.04
Graduate	9 (75.0)			
Phobia since				
Childhood	1 (50.0)	1.111; 0.256 - 4.824	-	1.00
Post childhood	11 (55.0)			

Fisher Exact test (under χ^2) unless otherwise reported, BPOL: Blood pressure-oriented latrophobia

latrophobia. Moreover, 80 (21%) of them indicated BPOL at different severity level; hence, considered for group i.e. intervention and control construction by random allotment on eligibility. Twenty two (73.3% of total 30) subjects of the intervention group adhered with the CBT. However, the control (n = 30) stayed intact.

Demographic statistics of the intervention groups were found, as: Age (M = 38.2, SD = 8.9; 20–56 years), males (n = 19, 86.4%), graduates (n = 12, 54.5%), BPOL onset after childhood (n = 20, 90.9%) and subjects with severe level of phobia (n = 12 incorporated all the three females, 54.4%). The severe level had significant association with biological age ($p=0.003$), while an academic graduate was approximately 3 times (95% CI: 0.969–8.087; $p = 0.04$) more likely to have more severe condition than non-graduates (Table1). Almost similar data were documented for the control. Similarly, mean baseline SBP of the intervention group was higher at study setting than at home (149 vs. 137 mm of Hg, respectively; $p = 0.0001$). However, intervention and control groups had insignificant difference of the pressure at hospital (149 vs. 148 mm of Hg, respectively; $p = 0.99$).

Among the cases, 15 (68%) marked the option ‘Afraid of potential bad findings by advance medical diagnostic techniques’ when they were asked to tick the reason behind their BPOL. The ‘fear of unpleasant BP-addressing

Table-2: Severity level of BPOL in intervention group.

Pre therapy	Post therapy; n (%)				
	Lower than pre-therapy (Improvement)			Same as pre-therapy	Higher than pre-therapy (Worsening)
	Moderate	Mild	No phobia		
Severe (n = 12)	1 (8.33)	6 (50.0)	3 (25.0)	2 (16.67)	-
Moderate (n = 8)	-	1 (12.5)	5 (62.5)	2 (25.0)	-
Mild (n = 2)	-	-	1 (50.0)	-	1 (50.0)
					Moderate

BPOL – Blood pressure-oriented latrophobia

Perceived fear eliminating segment(s) of the CBT	Serial No. of test person			
	IR • FR			
Shrinkage of fear	1	2	3	4
	1 0	1 2	2 1	2 0
Desire for physical and financial well-being	5	6	7	
	3 1	2 0	3 0	
Breath longer while out breath	8	9	10	
	3 3	3 1	2 2	
Trust in oneself	11	12	13	14
	3 1	3 0	3 1	2 0
Muscle relaxation and easy mood	15	16	17	18
	2 2	3 1	3 0	2 0
All the segments as a whole	19	20	21	
	3 2	3 1	2 0	
None	22	BPOL: Blood pressure-oriented latrophobia; IR – Initial reporting (about degree of BPOL) while FR – Final reporting		
	3 3			

Improvement
 No change
 Worsening

Figure: Outline of assessment results (n = 22).

medicines' ranked 2nd with 4(18.2%) respondents.

Post therapy, improvement was reported by all the respondents who considered; desire for physical and financial well-being; 'trust in oneself or overall therapy; as the fear eliminating factor (Figure). However, no change in the levels was noticed in a few subjects and there was even worsening reported instead of reduction in fear (Table 2). After treatment, a remarkable decline in SBP i.e. from 149 (baseline) to 142 mm of Hg was noticed at hospital ($t(21) = 8.829$, $p = .0001$). The posttreatment pressure was fairly higher than at home (138 mm of Hg) but lower than control at medical clinic (150 mm of Hg).

Discussion

Beck is acclaimed as the father of non-invasive CBT accounting for plenty of success stories in phobia management.¹⁵ The WCH-mediating BPOL has not yet been explored though it is a possible predisposing factor for premature death.³⁻⁵ The current pilot study, on account of sample size¹⁶ touched this neglected aspect and found encouraging findings in terms of reduction of BPOL, an irrational fear,¹ for WCH management. Actually, maintenance of a specific phobia is the synchronised result of biological and cognitive aspects as seen in a successful case study¹⁴ using CBT for treatment of acrophobia.

Rate of general latrophobia, 11.5% in the present study, is much higher than previously reported 3%.¹ The disparity might be due to some differences in lifestyle of the sufferers, and/or dealing approach e.g. impersonal nature² of doctors. Furthermore, reporting of BPOL in 80 respondents (i.e. 2.4% of total 3341) is a frightening one. Similarly, non-adherence with the therapy by 8 subjects is nothing but self-conceived poor prognosis as reported in a study¹⁶ on schizophrenia. It seems that males (86.4% of

22) are more prone to BPOL than females – apparently a physical manifestation of anatomical and endocrinological differentiation. The origin of BPOL can be traced back to childhood. Like suicidal ideation, its emergence can have bondages with adolescence or early adulthood. The elevated clinic BP is a tested predictor for cardiovascular diseases;³ hence, deserves early management through culturally adapted CBT.¹⁷

Higher rate of BPOL in males or middle-aged population (>25 years) has a good correspondence with general latrophobia¹⁸ in the test samples. However, severe BPOL in all the 3 female subjects of present investigation might be a synchronised impact of past child abuse and neglect and other biased social values. Increase in severity level of BPOL with increase in academic education marks likelihood of this mental disorder with medical awareness.

Patients may feel scared to go to hospital as they annex some undesirable events with it;¹⁹ hence, avoidance attitude is at its climax. Surprisingly, higher rate of BPOL sufferers (68.2% of 22) were found afraid of potential bad findings by advance clinical techniques. Actually, such bad findings would have been seen in case of dead beloved one; so, causes death anxiety leading latrophobia.⁶ Like injection phobia,²⁰ the pharmacophobia traces back to unpleasant incidences in the childhood while manifested by some lacunae in the behaviour, psychology and contextual factors.

The CBT, a gold standard of psychotherapy, is supposed to reduce the severity level of any phobia via changes in regional cerebral blood flow (rCBF) of an individual and emergence of freeze response for transition from flight to fight mood by gradual behavioural reconstruction in multiple sessions.^{1,8,9,14} The improvement is actually the

output of gradual desensitisation and change in thoughts as in hypnosis for treatment.^{7,15} The decrease in the level of phobia is inconsistent with previously published Pakistani studies on obsessive compulsive disorder (OCD),¹⁰ and depression,²¹ using culturally adapted CBT (CA-CBT).^{12,13} Coincidentally, CA-CBT is equally effective for South Asian Muslims with Pakistani origin²² and is the outcome of fear freeze theme.^{8,9} However, no change in the magnitude of latrophobia shows some resemblances with the findings of a previously published paper²³ on depression. The failure might be the cumulative impact of some loopholes, including patient's non-adherence and misconception about the therapy. Similarly, post-therapy worsening of the phobia is not surprising. Such adversity has also been reported in other studies on children²⁴ (some counterproductive impacts) and adults²⁵ (27% negative well-being). Pre-existing anxiety can be the main reason for this adverse outcome.

In terms of limitations, the current study had a small sample size due to constraints of time, finances and manpower. Similarly, the RCT is devoid of Clinical Trial Number (CTN) on account of tedious enrolment, recruitment and retention of the under-trial subjects. However, CBT was conducted as per the approved protocol of the institution to cover the missing CTN.

There remains the need of large-scale trials to validate the treatment before common use.

Conclusion

CBT improved BPOL in adults for WCH management. However, chance of it not working or working negatively towards the phobia still existed.

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Conflict of Interest: None.

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