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A parallel-group, double-blind, randomized controlled feasibility trial in Pakistan for treatment of self-stigma and shame in substance use disorders through acceptance and commitment therapy

Mavia Gul, Muhammad Aqeel, & Sehrish Shaqoor

Abstract

Background: Self-stigma and Shame have broadly been studied as related to substance use disorders globally, however interventions have not been examined in randomized double-blind, and parallel-group clinical trials. There have little been known related to the evaluation and treatment of self-stigma and shame in Pakistani substance user patients. This study examined the effects of acceptance and commitment therapy (ACT) for self-stigma and shame in patients with treatment for substance user disorders.

Methods: Sequential cohort sets have been allocated in a pairwise random style to get intervention of the acceptance and commitment therapy (ACT) and treatment as usual (TAU) in place of six hours of a group workshop during a single week and concentrated on acceptance in relation to shame and self-stigma which would have followed at that similar interval.

Results: The results of linear mixed-effects models demonstrated that the ACT intervention resulted in minor immediate increases in shame at pre-test however higher reductions were observed at post-test in patients with experimental(ACT) group as comparison of patients with control group. Further, those patients with the ACT group found less shame in comparison of patients with treatment group at follow-up. Moreover, Effects intervention of the ACT on treatment use at follow-up phase have statistically been significant through post-treatment stages of shame, these results illustrated that greater levels of shame were found at post-treatment phase in patients with treatment groups at follow-up. Furthermore, effects intervention of the ACT on shame at follow-up phase have been mediated through treatment use at follow-up phase, recommending that ACT intervention could have had its influence, as a minimum in part, by improving patients in treatment groups.

Conclusions: This study's findings recommended that the ACT therapy was more effective promising intervention toward reducing the shame in patients with substance user disorders. The results of present study would serve as a new model to plan prospect randomized control trail with ACT-related interventions. Further, it would also be cost effective as well as play important role as prevention to improve relapse rate in patients with substance user disorders.

Keywords: Shame, stigma, acceptance and commitment therapy, substance use disorder.

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Background

Nowadays, there is mutual agreement among health professionals and governments across the different countries to manage and prevent health-related self-stigma and shame in drug use disorder patient globally. This consensuses with a prompt development of study on self-stigma and shame(Manzo, 2004; Livingston *et al.*, 2012; Luoma *et al.*, 2012; Gul & Aqeel, 2021; Aqeel *et al.*, 2022) which, so far, has focused on exploring the magnitude of above mention issues and comprehending its deleterious consequences in different population (Herbert et al., 2022; Potts et al., 2022). Earlier studies have also been rapidly to shift their focus to find out answer of the question of how self-stigma and shame linked to mental problems as well as substance use problem could be decreased (Henny et al., 2022; Nisar et al., 2020).

Moreover, shame has broadly been found as associate with substance use disorders as well as their preventing and management, but the complex nature of the association or how comprehend and best to describe it in framework of clinically are contentious and open for further debate in different samples. The shame's emotion drives once an apparently flawed self is demonstrated to others and oneself (Dearing et al., 2005; Rashid et al., 2021; Risør et al., 2022; Saif et al., 2021). Whereas, shame could have adaptive public roles including solidifying societal norms and roles, appeasing others, or evoking sympathy, following the break of social norms or roles (Dickerson et al., 2004; Tahira & Jami, 2021; Tracy & Robins, 2004), it commonly assists a harmful function in the framework of substance abuse.

Shame is commonly found among those patients with substance use disorder in comparison with those patients without substance use disorder (Dearing et al., 2005; Risør et al., 2022). It was also associated with substance use disorder (Aqeel & Rehna, 2020; Mohr et al., 2008; Toqeer et al., 2021). Further, it has been dragged toward relapse in substance use disorder (Wiechelt & Sales, 2001). Shame is considered as the emotional treatment of self-stigma in drug addicted sample that was linked to treatment-seeking delays, treatment dropout, and poorer social functioning (Niu et al., 2022; Perlick et al., 2001; Sirey et al., 2001).However, with a lot of noteworthy exemptions, there are carried out many studies on interventions designed to reduce shame and stigma in different population (Gilbert & Procter, 2006; Niu et al., 2022; Risør et al., 2022; Rizvi & Linehan, 2005). Many interventions of substance use disorder explain shame with related to addiction(Niu et al., 2022; Potter-Efron, 2002), nevertheless a few studies have also been thoroughly studied.

This current research was carried out base on the concept that minimum two frameworks associate shame with negative consequences including poor social functioning and substance misuse(Mohr et al., 2008; Niu et al., 2022). First of all, through a proper channel well-known cognitive fusion, association with the actual meaning of self-devaluing and self-critical thoughts enhances the probability of negative behaviors including substance use disorder. These deleterious behaviors or thoughts lead and further strengthen a destructive self-concept in person (Hayes et al., 2004; Niu et al., 2022). Secondly, through a proper channel well-recognized practical avoidance that the inclination to avoid complex personal experiences such as a way of behavioral or emotional regulation even once it drags to problematic behavior (Hafsa et al., 2021; Hayes et al., 2006; Paulos-Guarnieri et al., 2022). Chemical substances are obtained to suppress and avoid shame or its associate deleterious emotions and outcomes in person. This decreases access to the possibly helpful shame's functions including signing a violation of personal values and social roles. This process may serve for enhancing shame because of avoidance and suppression tend to drag toward improving of the feeling or thought being avoided and suppressed (Hayes et al., 2006; Wenzlaff & Wegner, 2000). Previously, experiential avoidance has also been associated with greater prevalence of shame in drug addicts(Paulos-Guarnieri et al., 2022; Sarfraz et al., 2021; Weeden & Poling, 2010). It further leads self-destructive thoughts (Ahmed et al., 2021; Ostafin et al., 2008; Paulos-Guarnieri et al., 2022). This whole process address in development of problematic behaviors and thoughts in substance use disorder, a major intervention targets and reduces of shame must be cognitive fusion intervention with ideas of experiential avoidance of thoughts that may help an adaptive role for improving social destructive negative behavior patterns. For substance use disorder, acceptance may also be adaptive responses to complex internal and external personal experiences including negative self-judgment and shame. For instance, acceptance has been linked to control and reduction of automatic alcohol thoughts on drinking behaviors and feeling (Jaffri et al., 2021; Naeem et al., 2021; Ostafin et al., 2008; Potts et al., 2022; Shahzad et al., 2021).

The purpose of the current research examined the effects of the acceptance and commitment therapy for shame in patients with substance use disorder. The acceptance and commitment therapy was positively associated with negative consequences of opiate addiction, chronic marijuana use, alcohol use, and nicotine dependence disorders(Potts et al., 2022; Risør et al., 2022). In the acceptance and commitment therapy framework, it is trying to eliminate or reduce shame through psychological acceptance method which participants encourage to describe their feelings and thoughts of shame, while decreasing their conditioned associate with internal and external acts. Negative thinking such as self-judgments about their own self. For example or "I am a loser and evil" are tackled and resolved through cognitive diffusion. This current research was the first cluster randomized trial to examine the acceptance and commitment therapy on shame in a sample of Pakistani's substance use disorders.

Method

Research design

Sequential pairs of cohort have been allocated in a pairwise random style to get either the 6-hr intervention of the acceptance and commitment therapy (ACT) and treatment as usual (TAU) in place of six hours of a group workshop during a single week and concentrated on acceptance in relation to shame and self-stigma which would have followed at that similar interval. The trail design was related with an additive intervention design, excepting that those in the acceptance and commitment intervention situation contributed in six hours less of their systematic intervention program in comparison with treatment as usual (TAU). Detail information of experiment is presented in a

consort chart at Figure 2.

Incentives and recruitment. Recruitment was carried out in different trails and phases. Research members met with professional member to recognize appropriate participants who have been provided a flyer of present study and requested to participate in the preliminary assessment. In this meeting, those participants who were given their written and verbal inform consent to participate in the pre-intervention examination battery and they were included in present study. On the other hand, those participants who did not fulfil the criteria of present study, they were excluded from this present study.

Trial design

This study was conducted based on a double-blind, parallel-group, randomized controlled feasibility trial in Pakistan to compare treatment as usual as a control group and treatment with ACT therapy as an experimental groups. Cluster sampling was used to include sixty five diagnosed substance use disorders patients were recruited from different drug Rehabilitation Centers of Islamabad and Rawalpindi, Pakistan, from January 2020 to 2020 December. The trial design is presented in Figure 1.

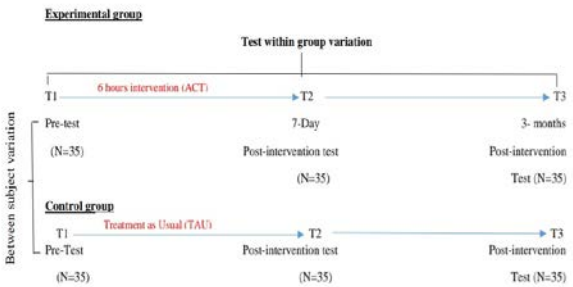

Figure. 1. The trial design

Baseline phase & Outcome

At baseline phase individuals referred by the rehabilitation key worker who elected to participate provided written informed consent. Baseline measurement started on the same day for all participants. All selected participants were given a general description of the project and took interviews to evaluate their enrollment eligibility for present experiment. If patients fulfilled the inclusion criteria of present study, they have been requested to complete a pretesting session (T-0) and were randomly assigned to groups. Pretesting targeted outcome domain were multidimensional social support, quality of life, general mental health as secondary variables and shame as primary variable. After baseline phase, the participants of study were randomly placed into one of two groups (ACT, TAU).

Eligibility criteria

Inclusion criteria. Eligibility criteria were comprehensive and reflect real-world characteristics. Study staff made the diagnosis of substance use disorder, based on structured clinical interview after taking informed consent from the patient for participation in the study. Participants must not have any psychiatric disorders and severe neurological disorders and have been in a residential treatment program for 2 months with a general orientation toward a 12-step model, psychosocial programs, psychotherapy, general health care and medication management. All potential study participants who will be consented to participate in the study complete the pre-intervention assessment battery at baseline phase that will be held in the residential unit. No changes were made in method after the trial started.

Exclusion criteria. Exclusion criteria were followed as those participants who did not fulfil the criteria of present study, they were excluded from this present study. For example, those participants who were enrolled simultaneous in another interventional program. Further, those participants who were also not available to participate for 6 hours in present study. Moreover, those patients who had any cognitive impairment and other mental health problems, they were excluded from present study.

Randomization and Masking

Sixty five diagnosed patients with substance use disorder were randomly allocated in experiment and control groups to obtain treatment as usual and ACT intervention though computer-generated randomization schedule technique and they were supervised through an independent external statistician for concealment of allocation in present study. Double blind technique and cluster randomized control trails were used to conceal of treatment allocation and identity of participants in both treatments groups from Clinicians and participants throughout the intervention.

Interventions

Acceptance and Commitment Therapy. The ACT intervention was designed and modified as per Pakistani culture and it was also dire need of the study's participants to understand this intervention. Diagnosed patients with substance use disorder joined an ACT intervention group in place of treatment as usual at same time and similar instructions. Professional's psychologist were served to deliver ACT intervention on a group basis for 21 days which was included 6 hrs Of treatment with almost a 2 hrs session in one day. Overall 4 groups of all participants were made of eight to ten patients. Participants with ACT groups have been controlled by two Professional's psychologist. Furthermore, two addiction psychologists and one counselor were also included to analysts. ACT intervention was planned basis on 5 basic modules including committed action, values, willingness, diffusion, and workability and two general targets such as shame and self-stigma. Specific activities were designed to the personal needs of patients, whereas normal sessions were applied and maintained. ACT intervention focus on formation and development of a situation for acceptance, followed through commitment to action and values such as the major psychological manners. The first session's purpose was introduced psycho-education or understanding with intervention. This intervention was more emphasized creation of a context for acceptance by rigors examination and cost assessment of previous control struggles and making a space for unique new explanations, willingness, and acceptance to modification in second and third session. The participants was introduced to the concept of diffusion, as used within ACT. As a physical metaphor the participant was asked to write a shame based thought, they had about themselves on a card and hold it straight in front of them, in order to demonstrate how you can sometimes be

blinded and restricted by unwanted thoughts. Clinician than instructed the participants to hold the card far away from the face with an extensive amount of strength, this was done in order to generate an intense physical experience to demonstrate the effort it takes to try and push-away or get rid of difficult thoughts. After that participants have to lay the card on their lap and notice how they can engage with the world even though the thought is still present.

A paper-based exercise "The ACT Matrix"(Paulos-Guarnieri et al., 2022) was used to help identify unwanted internal experiences surrounding a chosen life domain, recognize what unhelpful strategies the participant may be engaging in to avoid those unwanted internal experiences, and finally classify a series of both short and long-term goals to reach a valued direction in their chosen life domain. The participants was then directed either the leaves on the stream exercise or the "I'm having the thought" exercise in order to create space between the self and unwanted thoughts.

Fourth and fifth sessions focus on value-based life, acceptance, and willingness as another to managing and tackle feeling of shame. The major aim of sixth and last session was to format a way of behavior and thoughts by value-based exposures in present study. The intervention sessions were also reviewed or modified and patients were ready for failure and recurrence. A lot of exercises and assignments in final sessions were designed to the personal requirement of the clients, including life-enhancing, practicing, and mindfulness. These sessions were nearly ninety minutes long. In the end of final session, the clients were provided a booklet with psychoeducational data, audios, and brief exercises to complete if they were willing.

Treatment as Usual. The parallel was treatment as usual that comprised of care worker from primary care mental health services such as professional psychologist, primary intervention and prevention in addiction disorder, and clinical settings. The general treatment plan at this facility averaged thirty four hours in week with different of therapies including educational groups and psychoeducational. Pre or post evaluations were performed before one week to place patients in both groups. During the pre and post examination phase, those participants was placed in the ACT group, they were received ACT intervention to improve shame, whereas those participants were placed in the TAU group, they were only attended their normal program.

Measures

Four standardized psychological instrument were used to assess shame, social support, and quality of life at all time points in present study. The findings of internal consistency is reported below table 1 at all-time points.

Primary variable. The internalized shame scale was assumed as primary variable because it was the major focus of the intervention group, it persistent involvement in alcohol and drug management after release since this is an important way to eradicate long-term consequences for substance use programs (Gul & Aqeel, 2021; McLellan et al., 2000), it was a main goal of the ACT therapy, and follow-up alcohol and drug use disorder since that is an essential trait of drug addiction.

Internalized shame scale. Shame was assessed by the internalized shame scale which was developed by Rybak and Brown (1996) and it was also translated and adapted in present study. It is a twenty four items instrument to assess shame. Items of this scale are rated a 7-point Likert scale from 1 (never) to 7 (always). Internalized shame scale has demonstrated good validity and reliability present study(Gul & Aqeel, 2021; Rybak & Brown, 1996).

Secondary variables. Three secondary scales were used to measure general mental health, quality of life, and social support in substance use disorders. These three variables are related with the long-term adjustment of substance use disorders globally(Compton et al., 2003; Gul & Aqeel, 2021).

The General Health Questionnaire. Overall mental health was measured by the general health scales (Gul & Aqeel, 2021; Vieweg & Hedlund, 1983). It is a twelve items scale which was developed to examine mental health. Higher scores on this scale demonstrated better mental health. Whereas, lower scores on this scale revealed bad mental health. It has demonstrated good validity and reliability present study.

Quality of life. It was developed by Flanagan (1978). It is a sixteen item scale that is designed to measure quality of life in work and family settings. Higher scores on this scale demonstrated better quality of life. Whereas, lower scores on this scale revealed bad quality of life. It has demonstrated good validity and reliability present study(Flanagan, 1978; Gul & Aqeel, 2021).

The Multidimensional Scale of Perceived Social Support. It was developed by Zimet et al. (1988). It is a twelve item scale which was developed to measure social support. Higher scores on this scale demonstrated good social support. Whereas, lower scores on this scale revealed weak social support. It has demonstrated good validity and reliability present study(Zimet et al., 1988).

Data analysis

This study was designed to examine effectiveness of the acceptance and commitment therapy for reducing self-stigma and shame in patients with substance user disorders. A two-way factorial ANOVA analysis was used to evaluate the effectiveness of the acceptance and commitment therapy on self-stigma and shame(Field, 2013). Moreover, this analysis was also carried out between treatment as usual group and treatment with acceptance and commitment therapy group based on three different time conditions such as pre, post and follow up. Wherein time conditions were considered as IV while shame, general mental health, quality of health, and social support were considered as dependent variable.

Consort

The Consolidated Standards of Reporting Trials (CONSORT) was used for reporting of parallel group randomized controlled trials. In total, 65 participants gave their consent and were randomized to one of the two groups: ACT (n=35), TAU (n=30). Detail information of experiment is presented in a consort chart at Figure 2.

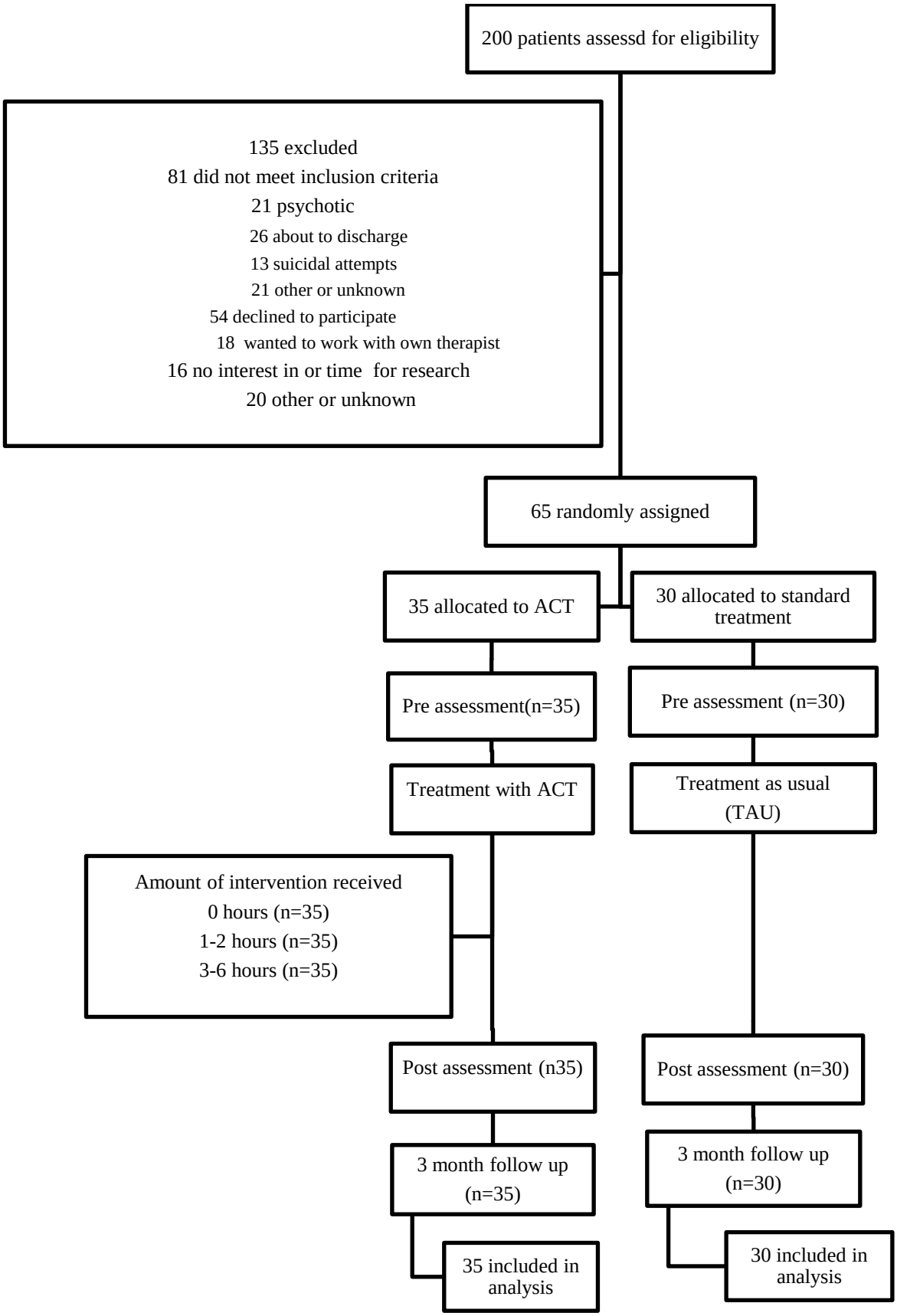

Figure. 2. Consort flow diagram

Results

Table 1

Mean differences between treatment as usual and ACT on shame, general health, quality of life, Acceptance and action, multidimensional social support in substance users (*N*=65).

		Treatment as usual(n=30)		ACT (n=35)		Group			Time			Group*time			(95% CI)	
	α	M	SD	M	SD	F	p	η_p^2	F	p	η_p^2	F	p	η_p^2	UL	LL
SH																
Pre	.91	27.06	4.44	26.17	5.72	37.67	.000	.166	31.04	.000	.247	26.56	.000	.219	19.65	21.75
Post		27.03	4.46	9.48	5.90											
FU		17.83	8.57	16.62	11.93											
GH																
Pre	.89	21.83	8.22	18.62	6.83	26.47	.000	.123	1.42	.244	.015	1.075	.343	.011	18.66	20.70
Post		21.50	6.98	15.40	6.95											
FU		23.70	5.31	17.02	8.37											
QOL																
Pre	.50	67.40	17.08	69.80	14.29	.52	.471	.003	29.66	.000	.239	1.037	.357	.011	76.50	80.51
Post		85.500	13.83	90.00	10.47											
FU		80.43	14.30	77.94	14.60											
AQ																
Pre	.73	32.60	6.31	32.14	3.53	6.09	.014	.031	58.37	.000	.382	5.399	.005	.054	23.45	25.53
Post		22.76	9.20	15.25	7.19											
FU		22.03	8.00	22.17	8.70											
MS																
Pre	.85	40.03	7.27	40.91	11.86	.486	.486	.003	11.97	.000	.112	.743	.477	.008	43.94	47.10
Post		48.23	10.83	51.85	12.61											
FU		46.63	11.77	45.48	11.40											

Note: SH= Shame, GH= General health, QOL= Quality of life, AQ= Acceptance and action questionnaire, MS= Multidimensional social support

In table 1, the aim of present study was to examine whether treatment as usual or treatment with ACT was more effective for shame among substance use disorders. A two-way factorial ANOVA between subjects were performed among treatment as usual or treatment with acceptance and commitment therapy based on three different time conditions such as pre, post and follow up. Wherein time conditions were considered as IV while shame, general mental health, quality of health, acceptance and social support were dependent variable. Findings of two-way factorial ANOVA revealed significant differences between two groups within pre, post and follow up conditions. After pretesting session (T = 0) when ACT was applied to the experimental group, participants showed a significant decline in shame at pre-intervention (M = 26.17 SD = 5.72) post-intervention SH (M = 9.48 SD = 5.90) and follow-up. However treatment as usual were provided to control group which shows no significant improvement in shame at pre-intervention (M = 27.66 SD = 4.44) post-intervention SH (M = 27.03 SD = 4.46) and follow-up that were primary measures. Furthermore, the findings of a two-way factorial ANOVA analysis demonstrated that the ACT intervention resulted in minor immediate increases in shame at pre-test however higher reductions were observed at post-test in patients with experimental(ACT) group as comparison of patients with control group.

Further, those patients with the ACT group found less shame in comparison of patients with treatment group at follow-up. Moreover, Effects intervention of the ACT on treatment use at follow-up phase have statistically been significant through post-treatment stages of shame, these results illustrated that greater levels of shame were found at post-treatment phase in patients with treatment groups at follow-up. Furthermore, effects intervention of the ACT on shame at follow-up phase have been mediated through treatment use at follow-up phase, recommending that ACT intervention could have had its influence, as a minimum in part, by improving patients in treatment groups.

Additionally, this analysis results revealed that there was found slight significant improvement on secondary variables such mental health, social support, and quality of life.

Shame. The result demonstrate that shame score was significant in timeline (pre, post, follow up) (F=37.67, P=.000, η_p^2 =.166) group (F=31.04, P=.000, η_p^2 =.247) and interaction effect (F=26.56, P=.000, η_p^2 =.219). In standard treatment arm participants showed no significant improvement in pre (M=27.06, SD=4.44) post (M=27.03, SD=4.46) and follow up (M=17.83, SD=8.57) conditions. When observing pre to post assessment changes in shame, greater decreases in shame from pre (M=26.17, SD= 5.72) to post (M=9.48, SD=5.90) and again there is escalation in followup(M=16.62,SD=11.93)due to the lack of treatment i n this time. Figure 9 shows that after pre testing session (T-0) when ACT were applied to the experimental group, participants showed significant decline in shame at post testing (T-1),whereas no significant difference were shown in control group at this level. While in follow-up (T-2) both groups were remain same.

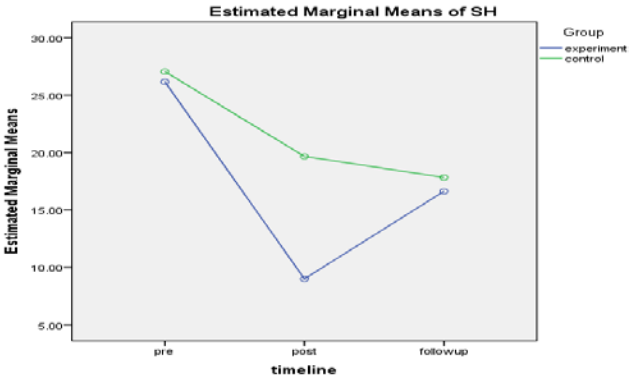

Figure 3. Mean difference of shame between T-0 (pre testing), T-1 (post testing), and T-2 (follow-up) in control and experimental group (N=65).

General mental health. The analysis showed significant effect for treatment condition in group (F=26.47, P=.000, η_p^2 =.123), but there was a nonsignificant effect for time (F=1.422, P=.244, η_p^2 =.015) and the interaction of group and time (F=1.07, P=.343, η_p^2 =.011). Participants in the ACT condition showed a medium and significant improvement from pre (M=18.62, SD=6.83) to post treatment (M=15.40, SD= 6.95), but again an increase in through the follow-up period (M=17.02, SD= 8.37).There were no significant differences found at ST condition from pre (M=21.83, SD= 8.22) to post treatment (M=21.50, SD= 6.98) on this metric but at follow-up significant improvement was shown (M=23.70, SD= 5.31). In Figure 4 shows that after pre testing session (T-0) when ACT and standard treatment were applied in both groups, participants showed significant improvement in general mental health at post testing (T-1). While in follow-up (T-2) both groups were remain same.

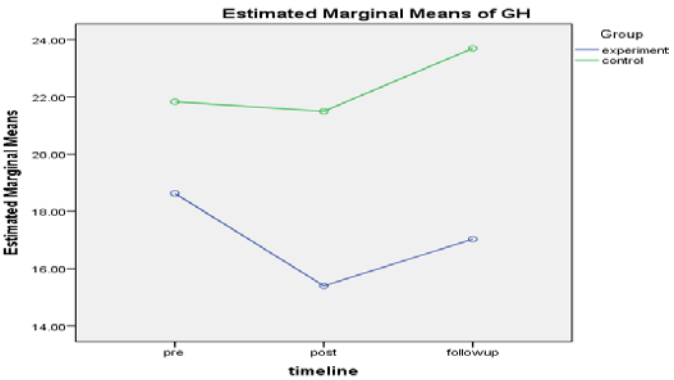

Figure 4. Mean difference of general mental health between T-0 (pre testing), T-1 (post testing), and T-2 (follow-up) in control and experimental group (N=65).

Quality of life. The analysis showed significant effect for treatment condition in timeline model (F=29.66, P=.000, η_p^2 =.239), but there was a marginally nonsignificant in group (F=.522, P=.471, η_p^2 =.003) and interaction of group and time (F=1.03, P=.357, η_p^2 =.011).Control participants showed a small and significant improvement from pre (M=67.40, SD= 17.08) to post condition (M=85.50, SD= 13.83) but slightly decrease at follow up level (M=80.43, SD= 14.30). Participants in the ACT condition also showed a medium and significant improvement from pre (M=69.80, SD= 14.29) to post condition (M=90.00, SD=10.47) but did not maintained through the follow up period (M=77.94, SD= 14.60). In Figure 5 shows that after pre testing session (T-0)

when ACT and standard treatment were applied in both groups, participants showed significant improvement in general quality of life at post testing (T-1). While in follow-up (T-2) both groups showed decline at this stage when no interventions were provided.

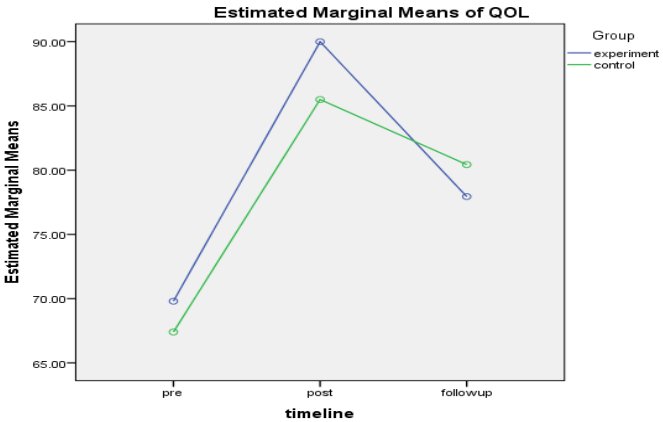

Figure 5. Mean difference of quality of life between T-0 (pre testing), T-1 (post testing), and T-2 (follow-up) in control and experimental group (N=65).

Acceptance and action questionnaire. The analysis showed nonsignificant effect for treatment condition in group (F=.609, P=.014, η_p^2 =.031). But there was a highly significant effect for timeline (F=58.37, P=.000, η_p^2 =.382) and fairly significant in interaction of group and time (F=5.39, P=.005, η_p^2 =.054). Participants in the ACT condition showed a significant improvement from pre (M=32.14, SD=3.53) to post (M=15.25, SD=7.19) and but again an increase in follow-up period (M=22.17, SD= 8.70).There were no significant differences found at ST condition from pre (M=21.83, SD= 8.22) to post treatment (M=21.50, SD= 6.98) on this metric but at follow-up significant improvement was shown (M=23.70, SD= 5.31). In Figure 6 shows that after pre testing session (T-0) when ACT were applied participants shows more improvement in psychological flexibility as compared to standard treatment at post testing (T-1). While in follow-up (T-2) both groups were remain at same level.

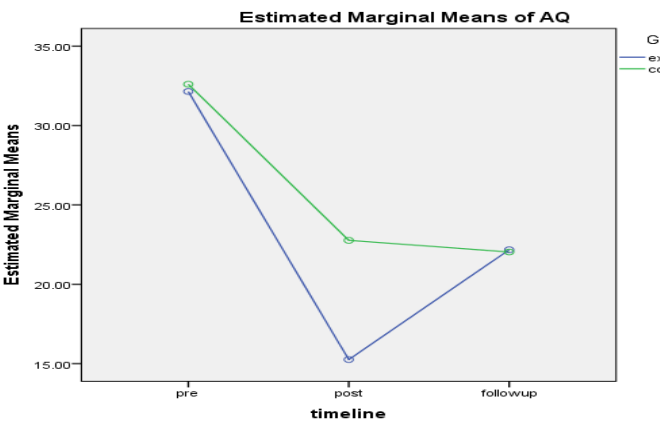

Figure 6. Mean difference of psychological flexibility between T-0 (pre testing), T-1 (post testing), and T-2 (follow-up) in control and experimental group (N=65).

Multidimensional social support. There was an effect for cohort within both arms of the study, necessitating a nested analysis. Because a fully nested MMRM analysis did not converge, an aggregate repeated measures MANOVA was applied and showed a significant effect for timeline (F=11.97, P=.000, η_p^2 =.112). Whereas nonsignificant in group (F=.486, P=.486, η_p^2 =.003) and interaction of group and time (F=.743, P=.477, η_p^2 =.008).Control participants showed small significant improvement from pre (M=40.03, SD= 7.27) to post condition (M=48.23, SD= 10.83) (note, in interpreting these values, that higher scores mean greater social support) but slightly decrease at follow up level (M=46.63, SD= 11.77). Participants in the ACT condition showed more significant improvement as compared to control group from pre (M=40.91, SD= 11.86) to post condition (M=51.85, SD=12.61) but decreases during follow-up period (M=45.48, SD= 11.40). In Figure 7 shows that after pre testing session (T-0) when ACT were applied participants shows more improvement in social support as compared to standard treatment at post testing (T-1). While in follow-up (T-2) both groups were almost remain at same level.

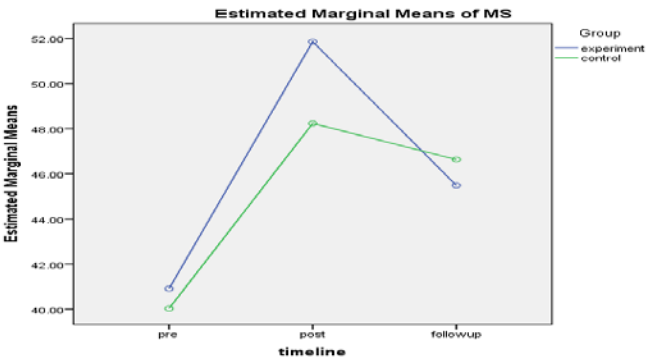

Figure 7. Mean difference of social support between T-0 (pre testing), T-1 (post testing), and T-2 (follow-up) in control and experimental group (N=65).

Discussion

Shame have broadly been studied as related to substance use disorders globally, however interventions have not been examined in randomized double-blind, and parallel-group clinical trials. There have little been known related to the evaluation and treatment of self-stigma and shame in Pakistani substance user patients. To our best knowledge, this current research was the first double blind and randomized control trial in Pakistani patient with substance use disorder wherein the major target of the intervention was shame. This study examined the effects of acceptance and commitment therapy (ACT) for self-stigma and shame in patients with treatment for substance user disorders. Furthermore, the findings of a two-way factorial ANOVA analysis demonstrated that the ACT intervention resulted in minor immediate increases in shame at pre-test however higher reductions were observed at post-test in patients with experimental(ACT) group as comparison of patients with control group. Further, those patients with the ACT group found less shame in comparison of patients with treatment group at follow-up. Moreover, Effects intervention of the ACT on treatment use at follow-up phase have statistically been significant through post-treatment stages of shame, these results illustrated that greater levels of shame were found at post-treatment phase in patients with treatment groups at follow-up. Furthermore, effects intervention of the ACT on shame at follow-up phase have been mediated through treatment use at follow-up phase, recommending that ACT intervention could have had its influence, as a minimum in part, by improving patients in treatment groups.

Additionally, this analysis results also revealed that there was found slight significant improvement on secondary variables such mental health, social support, and quality of life.

Shame is commonly found among those patients with substance use disorder in comparison with those patients without substance use disorder (Dearing et al., 2005; Risør et al., 2022). It was also associated with substance use disorder (Aqeel & Rehna, 2020; Mohr et al., 2008; Toqeer et al., 2021). Further, it has been dragged toward relapse in substance use disorder (Wiechelt & Sales, 2001). Shame is considered as the emotional treatment of self-stigma in drug addicted sample that was linked to treatment-seeking delays, treatment dropout, and poorer social functioning (Niu et al., 2022; Perlick et al., 2001; Sirey et al., 2001).However, with a lot of noteworthy exemptions, there are carried out many studies on interventions designed to reduce shame and stigma in different population (Gilbert & Procter, 2006; Niu et al., 2022; Risør et al., 2022; Rizvi & Linehan, 2005). Many interventions of substance use disorder explain shame with related to addiction(Niu et al., 2022; Potter-Efron, 2002), nevertheless a few studies have also been thoroughly studied. The acceptance and commitment therapy was positively associated with negative consequences of opiate addiction, chronic marijuana use, alcohol use, and nicotine dependence disorders(Potts et al., 2022; Risør et al., 2022). In the acceptance and commitment therapy framework, it is trying to eliminate or reduce shame through psychological acceptance method which participants encourage to describe their feelings and thoughts of shame, while decreasing their conditioned associate with internal and external acts. Negative thinking such as self-judgments about their own self. For example or "I am a loser and evil" are tackled and resolved through cognitive diffusion. This current research was the first cluster randomized trial to examine the acceptance and commitment therapy on shame in a sample of Pakistani's substance use disorders.

Limitations & suggestions

There are a few limitations of the present study that should be addressed for upcoming studies. Although an imputation method was used to treat missing values, there was exist a lot of missing value at follow-up phase. Many substance use disorder patient can be hard to track at follow-up phase. Further, it was also hard to define TAU group in drug rehabilitation centers due to the amount as well as complication of intervention received. The ACT treatment can have made effects that have been because of the other unspecific of attention from gives outside staff and newly professional psychologists. This study's scale of shame was only measured internal shame, however it was not yet consensus upon how to perfectly assess conditional shame's levels and discriminate it from feeling of guilt, an emotion or feelings that have more commonly been found to be adaptive.

Conclusion

Several substance use disorder patients experience feeling of shame because of the substance abuse's stigma, unable to control and avoid their substance use, as well as they are also unable in role functioning in their life. Comprehensibly, patients are interested to control, reduce and avoid this very painful affect. Regrettably, when the shame's feelings itself develops the target of control and avoidance, it could worsen emotions of shame for long term, even if it could give a few relief in the short period of time. Similarly, although negative self-conceptions are considered a painful, direct modification pains can unexpectedly enhance the regulatory power of deleterious self-conceptions. This study's recommended that acceptance-based interventions can assist individuals to tackle and prevent of a vicious cycle of = shame as well as move toward a way of effective recovery which drags toward more comfortable decreases in feeling of shame or toward further functional paths of living. Moreover, ACT intervention has the potential to be a promising and somewhat inexpensive type of intervention toward reducing the shame. This study's findings also illustrated that ACT intervention is playing very important role to improvement of shame and relapse. Thus, psychologist and psychiatrists are suggested to apply ACT intervention to prevent and tackle the risk of relapse rate. This present study could help for upcoming studies as a model to planning future cluster randomized control trails with ACT-related interventions.

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Ethical Consideration

The study was approved by the Foundation University Islamabad. Consent Form was taken before taking data and participants were asked to take voluntary participation

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Availability of data and materials

The data sets used and analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions/Author details

Miss Mavia Gul performed the main study under the supervision of Muhammad Aqeel. Sehrish Shaqoor wrote the article under the guidelines of Nature-Nurture Journal of Psychology.

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Ethics declarations

Ethics approval and consent to participate

This study was approved by the Institutional Review Board (Foundation University Islamabad). A written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare to have no competing interests.

Additional Information

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References

Ahmed, A., Aslam, N., Ahmed, B., & Salim, S. (2021). Indigenous Mental Health Perspective in the Representation of Vertigo symptoms: A Cross Sectional Study of Vestibulocochlear Disorder Patients. *Nature-Nurture Journal of Psychology*, *1*(2), 22–32.

Aqeel, M., & Rehna, T. (2020). Association among school refusal behavior, self-esteem, parental school involvement and aggression in punctual and truant school-going adolescents: a multilevel analysis. *International Journal of Human Rights in Healthcare*, *13*(5), 385–404. https://doi.org/10.1108/IJHRH-06-2020-0041

Aqeel, M., & Rehna, T., Shuja, K. H., & Abbas, J. (2022). Comparison of students' mental wellbeing, anxiety, depression, and quality of life during COVID-19's full and partial (smart) lockdowns: a follow-up study at a five-month interval. *Frontiers in Psychiatrist*.

Compton III, W. M., Cottler, L. B., Jacobs, J. L., Ben-Abdallah, A., & Spitznagel, E. L. (2003). The role of psychiatric disorders in predicting drug dependence treatment outcomes. *American Journal of Psychiatry*, *160*(5), 890–895.

Dearing, R. L., Stuewig, J., & Tangney, J. P. (2005). On the importance of distinguishing shame from guilt: Relations to problematic alcohol and drug use. *Addictive Behaviors*, *30*(7), 1392–1404.

Dickerson, S. S., Gruenewald, T. L., & Kemeny, M. E. (2004). When the social self is threatened: Shame, physiology, and health. *Journal of Personality*, *72*(6), 1191–1216.

Field, A. (2013). Andy Field - Discovering Statistics Using IBM SPSS Statistics. *Lavoisier.Fr*, *58*, 1–816. http://www.lavoisier.fr/notice/frMJO3AKKA6RIXLO.html%5Cnpapers2://publication/uuid/01872072-935D-4D89-AB3D-D7F41393EC7D

Flanagan, J. C. (1978). A research approach to improving our quality of life. *American Psychologist*, *33*(2), 138–147. https://doi.org/10.1037/0003-066X.33.2.138

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, *13*(6), 353–379.

Gul, M., & Aqeel, M. (2021). Acceptance and commitment therapy for treatment of stigma and shame in substance use disorders: a double-blind, parallel-group, randomized controlled trial. *Journal of Substance Use*, *26*(4), 413–419. https://doi.org/10.1080/14659891.2020.1846803

Hafsa, S., Aqeel, M., & Shuja, K. H. (2021). The Moderating Role of Emotional Intelligence between Inter-Parental Conflicts and Loneliness in Male and Female Adolescents. *Nature-Nurture Journal of Psychology*, *1*(1 SE-), 38–48. https://thenaturenurture.org/index.php/psychology/article/view/5

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy*, *44*(1), 1–25.

Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A., Dykstra, T. A., Batten, S. V, & Bergan, J. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, *54*(4), 553–578.

Henny, K. D., McCree, D. H., & Mermin, J. (2022). Opening Editorial AIDS and Behavior Special Issue on Stigma. *AIDS and Behavior*, 1–4.

Herbert, M. S., Dochat, C., Wooldridge, J. S., Materna, K., Blanco, B. H., Tynan, M., Lee, M. W., Gasperi, M., Camodeca, A., & Harris, D. (2022). Technology-supported Acceptance and Commitment Therapy for chronic health conditions: A systematic review and meta-analysis. *Behaviour Research and Therapy*, *148*, 103995.

Jaffri, A. B., Mukhtar, S. A., & Rizvi, S. Z. H. (2021). Indigenous Mental Health Perspective in Cognitive Distortions: A Cross-Sectional Study of Coping Strategies, Cognitive Distortions and Depression in University Students. *Nature-Nurture Journal of Psychology*, *1*(2), 45–54.

Livingston, J. D., Milne, T., Fang, M. L., & Amari, E. (2012). The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. *Addiction*, *107*(1), 39–50.

Luoma, J. B., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2012). Slow and steady wins the race: a randomized clinical trial of acceptance and commitment therapy targeting shame in substance use disorders. *Journal of Consulting and Clinical Psychology*, *80*(1), 43.

Manzo, J. F. (2004). On the sociology and social organization of stigma: Some ethnomethodological insights. *Human Studies*, *27*(4), 401–416.

McLellan, A. T., Lewis, D. C., O'brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness: implications for treatment, insurance, and outcomes evaluation. *Jama*, *284*(13), 1689–1695.

Mohr, C. D., Brannan, D., Mohr, J., Armeli, S., & Tennen, H. (2008). Evidence for positive mood buffering among college student drinkers. *Personality and Social Psychology Bulletin*, *34*(9), 1249–1259.

Naeem, B., Aqeel, M., & de Almeida Santos, Z. (2021). Marital Conflict, Self-Silencing, Dissociation, and Depression in Married Madrassa and Non-Madrassa Women: A Multilevel Mediating Model. *Nature-Nurture Journal of Psychology*, *1*(2), 1–11.

Nisar, H., Aqeel, M., & Ahmad, A. (2020). Indigenous need arise to protect human from self-harm behavior in Pakistan: translation and validation of inventory of statements about self-injury. *International Journal of Human Rights in Healthcare*, *13*(5), 421–433. https://doi.org/10.1108/IJHRH-10-2019-0080

Niu, Y., Sheng, S., Chen, Y., Ding, J., Li, H., Shi, S., Wu, J., & Ye, D. (2022). The Efficacy of Group Acceptance and Commitment Therapy for Preventing Post-Stroke Depression: A Randomized Controlled Trial. *Journal of Stroke and Cerebrovascular Diseases*, *31*(2), 106225.

Ostafin, B. D., Marlatt, G. A., & Greenwald, A. G. (2008). Drinking without thinking: An implicit measure of alcohol motivation predicts failure to control alcohol use. *Behaviour Research and Therapy*, *46*(11), 1210–1219.

Paulos-Guarnieri, L., Linares, I. M. P., & El Rafihi-Ferreira, R. (2022). Evidence and characteristics of Acceptance and Commitment Therapy (ACT)-based interventions for insomnia: A systematic review of randomized and non-randomized trials. *Journal of Contextual Behavioral Science*, *23*, 1–14. https://doi.org/10.1016/j.jcbs.2021.11.001

Perlick, D. A., Rosenheck, R. A., Clarkin, J. F., Sirey, J. A., Salahi, J., Struening, E. L., & Link, B. G. (2001). Stigma as a barrier to recovery: adverse effects of perceived stigma on social adaptation of persons diagnosed with bipolar affective disorder. *Psychiatric Services*, *52*(12), 1627–1632.

Potter-Efron, R. T. (2002). Styd, vina i alkogolism: Klinicheskay practika [Shame, guilt and alcoholism: Clinical practice]. *Moscow: Institut Obschegumanitarnyh Issledovaniy*.

Potts, S., Krafft, J., & Levin, M. E. (2022). A pilot randomized controlled trial of acceptance and commitment therapy guided self-help for overweight and obese adults high in weight self-stigma. *Behavior Modification*, *46*(1), 178–201.

Rashid, A., Aqeel, M., Malik, D. B., & Salim, D. S. (2021). The Prevalence of Psychiatric Disorders in Breast Cancer Patients; A Cross-Sectional Study of Breast Cancer Patients Experience in Pakistan. *Nature-Nurture Journal of Psychology*, *1*(1 SE-), 1–7. https://thenaturenurture.org/index.php/psychology/article/view/1

Risør, B. W., Frydendal, D. H., Villemoes, M. K., Nielsen, C. P., Rask, C. U., & Frostholm, L. (2022). Cost Effectiveness of Internet-Delivered Acceptance and Commitment Therapy for Patients with Severe Health Anxiety: A Randomised Controlled Trial. *PharmacoEconomics-Open*, 1–14.

Rizvi, S. L., & Linehan, M. M. (2005). The treatment of maladaptive shame in borderline personality disorder: A pilot study of "opposite action." *Cognitive and Behavioral Practice*, *12*(4), 437–447.

Rybak, C. J., & Brown, B. (1996). Assessment of internalized shame: Validity and reliability of the internalized shame scale. *Alcoholism Treatment Quarterly*, *14*(1), 71–83.

Saif, J., Rohail, D. I., & Aqeel, M. (2021). Quality of Life, Coping Strategies, and Psychological Distress in Women with Primary and Secondary Infertility; A Mediating Model . *Nature-Nurture Journal of Psychology*, *1*(1 SE-), 8–17. https://thenaturenurture.org/index.php/psychology/article/view/6

Sarfraz, R., Aqeel, M., Lactao, D. J., & Khan, D. S. (2021). Coping Strategies, Pain Severity, Pain Anxiety, Depression, Positive and Negative Affect in Osteoarthritis Patients; A Mediating and Moderating Model . *Nature-Nurture Journal of Psychology*, *1*(1 SE-), 18–28. https://thenaturenurture.org/index.php/psychology/article/view/8

Shahzad, M., Munawar, K., & Riaz, F. (2021). Understanding Prevalence and Association of Suicidal Ideation, Deliberate Self-Harm, Stress, Anxiety Depression, and Mood Swings in Pakistan University Students: A Multilevel Analysis. *Nature-Nurture Journal of Psychology*, *1*(2), 12–21.

Sirey, J. A., Bruce, M. L., Alexopoulos, G. S., Perlick, D. A., Friedman, S. J., & Meyers, B. S. (2001). Stigma as a barrier to recovery: Perceived stigma and patient-rated severity of illness as predictors of antidepressant drug adherence. *Psychiatric Services*, *52*(12), 1615–1620.

Tahira, Q., & Jami, H. (2021). Association between Social Adjustment and Perceived Parenting Styles in Punctual, Truant, and High Achieving School Going Students: A Moderating Model. *Nature-Nurture Journal of Psychology*, *1*(2), 33–44.

Toqeer, S., Aqeel, M., Shuja, K. H., Bibi, D. A., & Abbas, D. J. (2021). Attachment Styles, Facebook Addiction, Dissociation and Alexithymia in University Students; A Mediational Model. *Nature-Nurture Journal of Psychology*, *1*(1 SE-), 28–37. https://thenaturenurture.org/index.php/psychology/article/view/2

Tracy, J. L., & Robins, R. W. (2004). " Putting the Self Into Self-Conscious Emotions: A Theoretical Model." *Psychological Inquiry*, *15*(2), 103–125.

Vieweg, B. W., & Hedlund, J. L. (1983). The General Health Questionnaire (GHQ): A comprehensive review. *Journal of Operational Psychiatry*.

Weeden, M., & Poling, A. (2010). Learning ACT: An Acceptance & Commitment Therapy Skills-Training Manual for Therapists. In *The Psychological Record* (Vol. 60, Issue 3). New Harbinger Publications. https://doi.org/10.1007/bf03395728

Wenzlaff, R. M., & Wegner, D. M. (2000). Thought suppression. *Annual Review of Psychology*, *51*(1), 59–91.

Wiechelt, S. A., & Sales, E. (2001). The role of shame in women's recovery from alcoholism: The impact of childhood sexual abuse. *Journal of Social Work Practice in the Addictions*, *1*(4), 101–116.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, *52*(1), 30–41.

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