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Exploring The Link Between Attachment Style and Medication Adherence

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Abstract: Attachment styles adjust responses to stressful events via internal working models. Management of chronic diseases can be taxing enough to trigger attachment behavior. The aim of this study was to investigate the association between attachment styles and medication adherence across time. Attachment style was measured using the Relationship Questionnaire whereas medication adherence was measured using the Morisky Medication Adherence Scale-8. Data were obtained from 80 patients living with hypertension obtained through convenience sampling and the study used a quasi-experimental design. Dialectical Behavior Therapy was given to the experimental group while the control group continued with treatment as usual. The study findings revealed that at baseline medication adherence was lowest among participants with preoccupied (96.7% low, 3.3% moderate), followed by fearful (93.8% low, 6.2% moderate), and dismissing attachment style (91.2% low, 8.8% moderate). A non-significant association was reported ($p = .838$, Cramer's $V = .101$). At endline medication adherence was highest among participants with earned secure attachment (5.3% low, 73.7% moderate, 21.1% high) followed by dismissing (48.3% low, 44.3% moderate, 6.9 high), preoccupied (58.8% low, 35.3% moderate, 5.9% high), and finally fearful attachment style (90.0% low, 10.0% moderate). Association between attachment styles and medication adherence was statistically significant ($p < .001$, $V = .39$) with moderate strength. Inferential analysis revealed that the intervention group across time demonstrated higher odds of medication adherence (OR = .11, $p < .001$) compared to the control, with consistent improvements

from baseline to endline. The results indicate that internalized relational models influence patient commitment with treatment regimen and may sabotage satisfaction of psychological needs crucial for motivated health behavior. Incorporation of attachment-informed care into the management of hypertension would boost medication adherence. Adoption of longitudinal study designs in future research would help to investigate how durable earned secure attachment style is over time and its influence on adherence trajectories.

Keywords: Attachment styles, Medication adherence, Earned secure attachment, Dialectical behavior therapy, Hypertension.

Introduction

Human beings engage with each other, starting or working on existing relationships. Attachments are based on how individuals comprehend their world as guided by internal working models (IWM) that are formed in early childhood (Wharton & Marcano-Olivier, 2023). According to Bowlby (1973), individuals may have secure attachment style or insecure attachment style.

Attachment theory consider that early interactions with caregivers form internal working models that shape individuals' emotions, cognitions, and behaviors throughout life (Pakdaman et al., 2016). The models are expressed through attachment behaviors seen as actions aimed at maintaining closeness to attachment figures, mostly in times of distress (Bowlby, 1973; Pakdaman et al., 2016). Attachment styles in adulthood manifest as steady patterns of associating with others in close relationships, influencing trust, intimacy, and autonomy (Pakdaman et al., 2016).

Secure attachment manifests positive views of self and others, satisfaction with closeness and independence, as well as effective emotional regulation skills (Sharma & Kaushik, 2024). Pearson et al. (1994) argue that secure attachment can develop through different pathways. Continuous secure attachment indicating early childhood establishment and earned secure attachment which develops through reshaping of internal working models when individuals engage in reflective processes and form healing, supportive relationships. Both continuous and earned security underpin resilience across contexts and adaptive relationship patterns.

By contrast, insecure attachment consists patterns of hyper-activation or deactivation systems (Fraley et al., 2015; Karveli et al., 2023). Subtypes include preoccupied/anxious attachment, marked by negative self-view, profound dependency, and abandonment fears; dismissing/avoidant attachment, defined by self-sufficiency, emotional distance, as well as discomfort with intimacy; and fearful/disorganized attachment, which combines negative views of self and others, instability in relationships and ambivalence (Sharma & Kaushik, 2024; Travis et al., 2001). Insecure attachment has been linked to lower levels of well-being and relational difficulties (Sirois et al., 2016).

The impact of attachment orientations goes beyond personal relationships into the medical context, mainly for patients living with chronic illness. A diagnosis and its management often constitute frightening experiences that activate attachment behaviors (McFarland et al., 2024). In these settings, the clinician–patient relationship is filtered through the patient's internal working model. Securely attached patients generally demonstrate trust and openness, while balancing autonomy and intimacy, making the navigation of treatment relationships relatively easy (De Pasquale et al., 2023). In contrast, insecurely attached patients may present challenges: those with preoccupied attachment often exhibit dependency, hypersensitivity, and instability (De Pasquale et al., 2023; Reyhani et al., 2016); those with dismissing attachment may resist reliance on medical care emphasizing independence, (Shalev et al., 2022); and those with fearful attachment often oscillate between seeking and rejecting help, thus facing serious relational difficulties (Jimenez, 2017; Shalev et al., 2022). These relational patterns bear directly on clinical outcomes.

According to Mate (2004), insecure attachment styles are linked to poorer prognosis in chronic illness, partly due to their influence on coping strategies and treatment relationships. In particular, medication adherence concerns patients' behaviors in following prescribed therapeutic regimens, which bring out attachment dynamics. Secure attachment, whether continuous or earned, supports consistent adherence through trust, self-efficacy, and help-seeking, whereas insecure attachment may undermine adherence through relational ambivalence, avoidance, or dependency (Ferreira et al., 2024; Roisman et al., 2002; The Attachment Project, 2024).

Hypertension is a leading chronic cardiovascular disease, and adherence to prescribed medication remains fundamental to its effective management (Wan et al., 2022). Suboptimal adherence - manifesting as failure to

follow prescriptions, inconsistent use, or premature discontinuation - contributes substantially to poor blood pressure control and elevated risk of complications. Indeed, hypertension is the chief cause of mortality resultant from non-communicable diseases globally, highlting the urgent need for interventions that enhance treatment adherence (Burnier & Egan, 2019). Current clinical recommendations consistently feature medication adherence as a priority in hypertension care (Hamrahian et al., 2022). Research suggests that attachment styles may shape relational dynamics, involved in therapeutic regimen adherence whereby avoidant and disorganized attachment are more often associated with negative treatment outcomes.

Attachment processes remain relevant throughout the lifespan and are particularly salient during periods of acute stress such as illness (McFarland et al., 2024). While generally stable once formed, evidence suggests they can shift in response to therapeutic interventions or relational experiences (Helms et al., 2017; Seifi et al., 2024). This malleability reinforces the potential for psychological treatments to advance more adaptive relational patterns in the chronic disease management context.

Dialectical Behavior Therapy (DBT), is one such intervention of particular relevance. DBT was originally developed for individuals exhibiting chronic suicidality and self-injurious behaviors (Linehan, 1993). However, over time its application has expanded to populations characterized by serious emotional dysregulation, where it has shown effectiveness in improving interpersonal functioning and coping (Rizvi et al., 2024; Tan et al., 2022; Zalewski et al., 2018). DBT integrates acceptance and change-based strategies delivered through a combination of individual therapy, skills training groups, telephone coaching, and consultation teams for therapists (Zalewski et al., 2018). Individuals are equiped with flexible behavioral skills and emotional regulation is enhanced which fosters resilience in stressful contexts and may indirectly aid treatment adherence among patients living with chronic illnesses such as hypertension.

Attachment theory provides a practical framework for appreciating patient behaviors in the management of chronic disease, as insecure attachment styles may impair trust, communication, and adherence to treatment. Attachment styles are increasingly recognized as important determinants of treatment adherence in chronic disease management. Evidence from recent studies links insecure attachment orientations, to poorer adherence, while secure attachment style appears to promote consistent treatment engagement. For instance, Kerekes et al. (2024) has shown secure attachment to be associated with higher rates of treatment completion among individuals with substance use disorders, while Kelly et al. (2020) reported improved self-management in patients with diabetes. These findings submit that these psychological bonds formed through early life attachment experiences may directly influence health behaviors across diverse conditions.

Globally, estimated prevalence for hypertension medication adherence has been reported as 68.86% (Pal et al., 2025). In Kenya, the challenge of adherence is particularly acute: in Kenyatta National Hospital, Waari et al. (2018) reported that only 45.5% achieved high medication adherence while 28% were in the low adherence bracket. Similarly, nearly half (46.6%) of patients living with hypertension in Central Kenya report non-adherence to prescribed medications (Mutua et al., 2023). This is considerably lower than the global adherence rates. Such data highlight the pressing need for inventive approaches that surpass structural or pharmacological solutions, addressing patient-level psychological mechanisms. It is against this backdrop, the current study sought to investigate the relationship between attachment styles and medication adherence among patients living with hypertension in Kenya, with the objective of elucidate context-specific interventions that leverage psychological insights to improve medication adherence outcomes.

Methods

This study employed a quasi-experimental design with a non-equivalent control group to examine the relationship between attachment styles and medication adherence among patients with hypertension across three time points. The intervention was given to patients in two level 4 hospitals in Thika, Kenya, between March 2025 and July 2025. The study population consisted of adult patients with a confirmed diagnosis of hypertension. Eligible participants were those aged above 18 years, on treatment for at least six months, while patients with severe cognitive impairment or acute illness were excluded. A sample size of 80 was determined using Casagrande Formula, and participants were recruited through random sampling method until

the required number was achieved. Participants were recruited during hypertension clinic visits, screened against inclusion/exclusion criteria, and provided written informed consent. Individuals meeting PTSD criteria were excluded and referred for appropriate care. A total of 38 participants were enrolled at the experimental sites and 42 at the control site. Confidential registers were maintained, and private rooms within the hospital were allocated for study activities. The intervention group received 8 sessions of DBT over a period of 8 weeks in groups, facilitated by the researcher and two assistants.

Attachment style was assessed using the Relationship Questionnaire (RQ), a validated tool comprising a single question (RQ1) with four descriptive paragraphs outlining secure, fearful, preoccupied, and dismissing attachment styles, from which the respondents selects the one that befits them. Next the respondents rate their similarity to each of the four styles on a 7-point Likert scale, with the highest rating expected to align with the style chosen. Medication adherence was measured using the Morisky Medication Adherence Scale-8 (MMAS-8), which classifies adherence as low, medium, high. Additional sociodemographic and clinical data, including age, gender, marital status, education level, comorbid disease, and number of medications used, were collected using a structured questionnaire. Data collection was conducted by trained research assistants through self-administered surveys. A pilot study with 8 participants informed final adjustments of data collection tools. Data were coded and entered into SPSS 29 for analysis. Descriptive statistics summarized participant characteristics. Chi-square test were used to explore preliminary associations at baseline, midline, and endline between attachment style and medication adherence. Statistical significance was set at $p < 0.05$. Ethical clearance was obtained from Daystar University ISERC and a research license from NACOSTI, with additional approvals from hospital administrators.

Results

Table 1 - Sociodemographic Characteristics of Participants at Baseline (N = 80)

Baseline Characteristics	Control	Experimental	*p*
Age in years	52.5(18.00)	56.29(7.78)	.019
Gender			
Male	15(35.7%)	12(31.6%)	.814
Female	27(64.3%)	26(68.4%)	
Marital Status			
Married	28(66.7%)	27(71.1%)	.424
Single	10(23.8%)	5(13.2%)	
Widowed	4(9.5%)	6(15.8%)	
Highest Level of Education			
Primary school certificate	12(28.6%)	12(31.6%)	.414
High school certificate	4(9.5%)	4(10.5%)	
College certificate	12(28.6%)	9(23.7%)	
College diploma	4(9.5%)	8(21.1%)	
College higher diploma	4(9.5%)	4(10.5%)	
Bachelor's degree	6(14.3%)	1(2.6%)	
	Comorbid disease		
Group	No	Yes	
Control	21(50.0%)	21(50.0%)	.638
Experimental	17(44.7%)	21(55.3%)	
	Information on hypertension		
	No	Yes	
Control	14(33.3%)	28(66.7%)	.201
Experimental	18(47.4%)	20(52.6%)	
	Categories		
No. of drugs used	One	Two	
Control	32(76.2%)	10(23.8%)	.602
Experimental	27(71.1%)	11(28.9%)	

Difficulty buying medicine	No	Yes	
Control	15(35.7%)	27(64.3%)	.917
Experimental	14(36.8%)	24(63.2%)	

Note: Values are presented as n (%) for categorical variables and median (IQR) for continuous variables. Comorbidity, information-related status, number of prescribed medicines, difficulty buying medicine were self-reported.

The study had 80 participants whose median age was 55(11.00). Females were more than males in the both groups; control (64.3% vs 35.7%) and experimental (68.4% vs. 31.6%). Married participants formed the majority in both groups (control 66.7% vs. experimental 71.1%). Regarding education, majority of participants had attained primary school education in both groups (control group 28.6% vs experimental group 31.6%). The control group had equal representation of participants with co-existing conditions, while in the experimental group, 55.3% had a comorbid condition. A considerable number reported having information on hypertension (control group 66.7% vs. experimental group 52.6%) while most participants reported having only one prescribed medication (control group 66.7% vs. experimental group 52.6%). Economic constraints were also noticeable with majority of the participants reporting difficulty in purchasing prescribed medication (control group 64.3% vs. experimental group 63.2%). Age was statistically significantly difference between the groups (p = .019). However, non-significant differences were found between other demographic characteristics for groups (p > .05) at baseline.

Table 2 - Association of Attachment Style and Medication Adherence at Baseline, Midline, and End Line

	Medication Adherence				Exact	*p*	Cramer's
Attachment style	Low	Moderate	High	Total			
Baseline (N = 80)							
Fearful	15	1	0	16	.930	.838	.101
	93.8%	6.3%	0.0%	100%			
Preoccupied	29	1	0	30			
	96.7%	3.3%	0.0%	100%			
Dismissing	31	3	0	34			
	91.2%	8.8%	0.0%	100%			
Midline (N =75)							
Secure	5	9	4	18	14.931	.008	.347
	27.8%	50.0%	22.2%	100%			
Fearful	10	1	0	11			
	90.9%	9.1%	0.0%	100%			
Preoccupied	12	4	0	16			
	75.0%	25.0%	0.0%	100%			
Dismissing	19	10	1	30			
	63.3%	33.3%	3.3%	100%			
End line (N = 75)							
Secure	1	14	4	19	23.151	< .001	.387
	5.3%	73.7%	21.1%	100%			
Fearful	9	1	0	10			
	90.0%	10.0%	0.0%	100%			
Preoccupied	10	6	1	17			
	58.8%	35.3%	5.9%	100%			
Dismissing	14	13	2	29			
	48.3%	44.8%	6.9%	100%			

Note: Differences tested using Fisher's exact test – some categories had no cases.

A Fisher's exact test was performed to examine the association between attachment styles and medication adherence across the three time points. All participants at baseline had insecure attachment styles. A statistically non-significant association (p = .838, V = .101) was found, with low adherence proportions appearing broadly identical across insecure attachment categories (preoccupied 96.7%, fearful 93.8%, dismissing 91.2%). At midline, however, the association reached statistical significance (p = .008, V = .347) reflecting a moderate strength of association; descriptively, individuals with (fearful 90.9%, preoccupied 75.0%, dismissing 63.3%) reported low adherence compared to those with secure attachment (27.8 %). At the endline, a strong and statistically significant association was revealed (p < .001, V = .387) with adherence divergence widening, such that participants with earned secure attachment reported the highest adherence rates. High adherence level was found among 21.1% of those who developed earned secure attachment compared to 0.0% fearful, 5.9% preoccupied, and 6.9% dismissing attachment styles.

Table 3 - Generalized Estimating Equations for Attachment Styles and Medication Adherence across Time

Predictor	B	SE	95% CI	Wald χ^2	p
Intercept	1.116	2.875	-4.52, 6.75	0.151	.698
Midline	2.210	1.005	0.24, 4.18	4.833	.028
Endline	0.861	0.305	0.26, 1.46	7.977	.005
BL Preoccupied (vs Fearful)	-1.817	1.503	-4.76, 1.13	1.462	.227
BL Dismissing (vs Fearful)	-0.049	1.253	-2.51, 2.41	0.002	.969
Age	-0.022	0.020	-0.06, 0,02	1.244	.265
ESA (no vs yes)	1.610	0.529	0.57, 2.65	9.258	.002
Education (basic)	0.387	0.637	-0.86, 1.64	0.369	.544
Education (Intermediate)	-0.683	0.671	-2.00, 0.63	1.035	.309
Group (treatment vs control)	0.976	0.472	0.05, 1.90	4.272	.039

Note: DV = medication adherence (0 = low, 1 = moderate/high). Timepoint coded: baseline as reference, midline, endline. BL = Baseline. Attachment styles at baseline (preoccupied, dismissing, fearful) were entered as factors. ESA = transition to secure attachment (1 = yes, 0 = no). Group = two study sites (treatment vs control). Education had 3 categories (basic, intermediate, and high category which was the reference).

Generalized Estimating Equations (GEE) analysis was conducted to analyze the data collected at three time points, in recognition of the non-independence of repeated responses from participants. The GEE analysis showed that time was a statistically significant predictor of medication adherence. Participants were 91.2 times likely to be adherent at midline when compared to baseline (OR = 9.12, 95% CI [1.27, 65.46], p = .028). At endline participants were 2.37 times likely to be adherent to medication compared to baseline (OR = 2.37, 95% CI [1.30, 4.30], p = .005). Medication adherence significantly inmproved from baseline to midline and remained significantly higher at endline. Acquisition of earned secure attachment was a strong independent medication adherence predictor. Participants who acquired earned secure attachment were five times more likely to have higher adherence compared with those who remained with insecure attachment styles (OR = 5.00, 95% CI [1.77, 14.11], p = .002). The site was associated with adherence, but it was not central to the attachment-focused objective (OR = 2.65, 95% CI [0.05, 1.90], p =.039). Insecure attachment styles at baseline (preoccupied, dismissing, fearful) age, and education were not significant predictors of adherence (p >.22).

In summary, participants in the experimental group exhibited markedly better medication adherence over time, with adherence improving progressively from the start of DBT treatment to the end. In contrast, control participants showed substantially lower adherence mainly at midline. Generally, attachment style influenced adherence patterns; dismissing and preoccupied styles were linked to significantly poorer adherence at midline compared to earned secure attachment at endline.

Overall, the study findings exposed broad comparability of socio-demographic factors between groups, with age at baseline having significant difference, these characteristics did not meaningfully influence medication adherence over time. Instead, patterns across time demonstrated that medication adherence improved significantly across the three time points, with the experimental group showing persistently higher odds of moderate to high adherence compared to the control group. This outcome was most pronounced at midline, where control group participants displayed noticeably poorer adherence relative to experimental group participants, accentuating the DBT's effectiveness. Attachment style further embodied medication adherence patterns: although none of the insecure attachment styles reached significance across all time points, both preoccupied and dismissing styles were associated with lower adherence at midline when compared to earned secure attachment at endline. These findings suggest that beyond participants' sociodemographic and clinical characteristics, psychosocial factors as well as structured interventions considerably influenced adherence trajectories.

Discussion

The present findings are consistent with prior work showing how attachment insecurity can sabotage treatment adherence. For instance, Ciechanowski et al. (2001) study revealed that insecure attachment was significantly related to worse self-management in diabetes care ($p < .005$). Similarly, Costa et al. (2015) showed that preoccupied attachment style predicted sub-optimal medication adherence in patients with type 2 diabetes ($p = .016$), while Bennett et al. (2011) identified attachment anxiety as a distinct predictor of poor adherence across varied health outcomes ($p < .001$). Overall, these results indicate that individuals with insecure attachment styles may face challenges with emotional regulation, trust, and autonomy, all of which may impede consistency in medication adherence to self-directed treatment plans.

However, evidence in the literature is not consistent. For example, Fumaz et al. (2020) working with HIV-positive gay men, reported non-significant differences in adherence to antiretroviral therapy across attachment styles ($p = .08$). Similarly, Cavaiola et al. (2015) study reported that attachment style did not meaningfully predict medication adherence or treatment outcomes among participants who were opioid dependence and received medication-assisted therapy ($p = .086$). Zebardast et al. (2022) also reported a non-significant association between preoccupied attachment style and adherence to treatment in patients with chronic illness ($p > .05$), though significant associations were revealed for secure and dismissing attachment styles ($p < .01$).

These disparities may reflect differences in populations, study context, and measurement strategies. For instance, the structured support available in HIV care settings (Fumaz et al., 2020) may diminish the impact of attachment insecurity on medication adherence. In contrast, the present study focused on patients managing hypertension with relatively greater autonomy, where relational susceptibilities are more likely to affect adherence behaviors. Differences in both adherence measurement and attachment assessment tools across various studies may also contribute to divergence in findings. In spite of these mixed findings, the current results highlight the benefit of considering attachment-based mechanisms when designing adherence interventions, mainly for patients with higher emotional needs or limited social support.

From a theoretical context, these results can be understood through the lens of attachment theory, which asserts that internalized relationship models govern how individuals engage with healthcare providers and support systems (Bowlby, 1980). Insecure attachment may cultivate difficulty regulating emotions, mistrust, and struggle with external guidance, all of which could prejudice adherence (Bartholomew & Horowitz, 1991). The Self-Determination Theory (Deci & Ryan, 2013) complements the attachment theory suggesting that attachment insecurity may hamper satisfaction of vital psychological needs such as competence, relatedness, and autonomy, - needs that are important for maintaining health-promoting behaviors.

Integrating these frameworks yields a more comprehensive account of adherence than solely cognitive-behavioral perspectives such as the Health Belief Model. The buffering role of external supports may reduce the relevance of attachment insecurity in highly structured treatment contexts, such as opioid replacement programs. Conversely, in contexts that demand greater patient autonomy, as was the case in the current study, attachment orientations appear to wield a more noticeable influence on adherence outcomes.

Conclusion

This study demonstrated that a brief psychological intervention significantly improved medication adherence among patients with hypertension, and medication adherence progressively increased from the beginning to the end of the study within the experimental group. In contrast, patients in the control condition reported consistently lower adherence, mainly at midline, accentuating the added value of structured psychosocial support. Attachment style further affected adherence trajectories; insecure attachment orientations - especially preoccupied and dismissing were linked to markedly poorer adherence compared to earned secure attachment. These results bolster the usefulness of integrating psychosocial factors, such as attachment style, into management frameworks of chronic disease. Interventions that strengthen patients' capacity for autonomy, trust, and relatedness may generate sustained improvements in adherence. Future research should build up on these findings by testing attachment-informed interventions in larger and more diverse populations, while also investigating the long-term sustainability of adherence gains.

Recommendations

The findings from this study show that psychosocial factors, particularly attachment style, play a critical role in influencing medication adherence among patients with hypertension. In addition to pharmacological management, effective care should address emotional and relational needs that affect self-management. By fostering autonomy, trust, and relatedness, health-care systems can obtain more sustainable medication adherence outcomes.

Building on these implications, the study therefore recommends that in clinical practice practitioners should incorporate psychologial assessments, including attachment style, into the care of patients with hypertension and tailor adherence-focused support for patients with insecure attachment styles. Integration of attachment-informed adherence interventions at policy level and in healthcare systems within existing chronic disease programs, will leverage task-shifting approaches for scalability. Finally, future research should be conducted with larger, multi-site designs to validate these findings, test attachment-focused interventions in diverse populations, and evaluate long-term adherence outcomes.

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