

# Comparing the Effectiveness of Acceptance and Commitment Therapy and Schema Therapy on Psychological Well-being and Cognitive Distortion of Single Women with Love Trauma Syndrome

Rohollah Sharifi Nejad Rodani<sup>1</sup>, PhD Candidate;  Fatemeh Sadat Marashian<sup>2\*</sup>, PhD;  Masoud Shahbazi<sup>3</sup>, PhD

<sup>1</sup>Department of Counseling, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

<sup>2</sup>Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

<sup>3</sup>Department of Counseling, Masjed Soleiman Branch, Islamic Azad University, Masjed Soleiman, Iran

\*Corresponding author: Fatemeh Sadat Marashian, PhD; Department of Psychology, Ahvaz Branch, Islamic Azad University, Postal code: 61349-37333, Ahvaz, Iran. Tel: +98-61-33348420; Fax: +98-61-33329200; Email: fsadatmarashian@gmail.com

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## Abstract

**Background:** The stability and quality of emotional relationships can directly and indirectly affect the mental and physical health of women. This survey was designed to evaluate the effectiveness of Acceptance and Commitment Therapy (ACT) and Schema Therapy (ST) on psychological well-being and cognitive distortion in single women with Love Trauma Syndrome (LTS).

**Methods:** This study was a quasi-experimental designed by pre-test-post-test with a control group. The statistical population included all single women with LTS visiting counseling centers in Ahvaz, Iran in 2022. The statistical sample consisted of 45 participants who were selected using purposive sampling and were assigned into two experimental groups and one control group via simple random allocation. The first and second experimental groups received ACT (eleven 90-minute sessions per week), and ST (ten 90-minute sessions per week), respectively, while the control group was on the waiting list. The research instruments included the Psychological Well-being (PWB) Scale and the Interpersonal Cognitive Distortion Scale (ICDS). Analysis of covariance in SPSS version 26 was used for data analysis.

**Results:** The results showed that ACT and ST significantly influenced the psychological well-being and cognitive distortion of single women with LTS ( $P < 0.001$ ). The mean and standard deviation (SD) of psychological well-being and cognitive distortion were  $60.10 \pm 7.76$  and  $58.87 \pm 7.42$  in the pretest in the ACT group, whereas it was  $70.33 \pm 8.16$  and  $65.80 \pm 8.31$  in the posttest. Moreover, the mean and SD of psychological well-being and cognitive distortion were  $48.00 \pm 5.25$  and  $50.07 \pm 4.89$  in the pretest in the ST group, whereas it was  $39.33 \pm 5.16$  and  $44.00 \pm 4.48$  in the posttest. ACT had a more significant effect on the psychological well-being and cognitive distortion of participants than ST ( $P < 0.001$ ).

**Conclusion:** In conclusion, ACT was better suited for addressing the psychological well-being and cognitive distortion of single women with LTS. Based on these results and considering the role of ACT and ST, it is possible to help women with LTS enjoy psychological well-being by holding ACT and ST sessions.

**Keywords:** Acceptance and commitment therapy, Schema therapy, Psychological well-being, Cognitive psychology, Women

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## 1. Introduction

Humans possess a crucial social capacity to establish stable and meaningful relationships (1). Parent-infant bonding, child-parent bonding, romantic attachments during adolescence and youth, close friendships, and other forms of human bonding are essential for physical and mental health. The relationship with parents is typically described as the most important during childhood, whereas romantic relationships gradually gain importance during adolescence and youth (2, 3). Failure to build and maintain an intimate and committed emotional relationship can hinder a person's development and lead to

serious consequences for their lifelong well-being. In emotional relationships, people are closer and more intimate with their partners than with others (4). Thus, the stability and quality of emotional relationships can directly and indirectly affect lifelong psychological and even physical health (5). The breakdown of emotional relationships is among the most painful events that can happen in anybody's life and significantly affects their short- and long-term compatibility (6).

The unmet essential and emotional needs of people for stable and quality relationships can cause many psychological problems and disorders. A previous study suggested that women are more

vulnerable than men in this respect (7). Failure in romantic relationships is one of the most widespread and profound experiences of loss and mourning. It is not uncommon to experience love failure in adolescence and young adulthood, and romantic relationship termination is one of the most common sources of stress for college students (2). Emotional relationships find new dimensions upon entering university since the change of location and distance from family leads to more specific emotional needs, and it also becomes possible to establish a relationship with a person of the opposite sex (8). The damage caused by romantic relationships has cognitive, emotional, physical, personal, and social dimensions (9). Etemadnia and colleagues (10) reported that single women with love trauma syndrome (LTS) show maladaptive reactions, including confusion, maladaptive decisions, cognitive distortions, and rumination.

Psychological well-being includes positive feelings and overall life satisfaction, involving oneself and others in various areas (11). It is a multidimensional concept that influences physical and mental health and improves the quality of life. It means mental happiness and resilience against unpleasant experiences has emotional and cognitive constructs (12). Life satisfaction is the cognitive dimension of psychological well-being and covers a person's overall and conscious evaluation and judgment of their life (13). Its emotional dimension involves having positive emotions (such as happiness) and lacking negative emotions (such as sadness and anxiety) in life (14). The literature suggested that a sense of psychological well-being is important for ensuring mental and physical health, increasing lifespan, and proving the value of happiness alongside economic and social indicators (15). Therefore, improving this concept in hopeless people, in general, and in people with LTS, in particular, gives them greater confidence and awareness to take steadfast steps into the future. The damage caused by romantic relationships has cognitive, emotional, physical, personal, and social dimensions (5).

The concept of cognitive distortion is defined as fallacies that impact the incidence of many mental disorders (16). Therefore, people typically perceive themselves as victims of their environment, and external events cause discomfort, depression, and interpersonal problems for them. People

consider cognitive distortion as a solution for eliminating neuroses and resolving these events. However, cognitive therapists believe that people's misinterpretation of these external events causes negative emotions (17). This incorrect and automatic interpretation is referred to as "cognitive distortions or errors." Cognitive distortions are essential to cognitive psychology. Sometimes, the analyzed information is distorted in the mind (18). This type of distortion, called cognitive errors and distortions, can manifest in various forms. Satisfaction and dissatisfaction, calmness and nervousness, and most of people's states are directly related to their thinking process (19). In similar situations, people may act differently due to their varying emotions. To transition from the current state to the desired situation, people's emotions should be identified. However, since people's thinking determines their emotions, the best way to change behavior is to change their thoughts (20).

Acceptance and Commitment Therapy (ACT) is an effective therapy for adolescents with long-term stress (LTS). ACT posits that avoiding pain and tension is the main problem that leads to powerlessness and reduced life satisfaction (21). According to this theory, avoidance occurs when negative thoughts and emotions have excessive and adverse effects on behavior. Therefore, ACT mainly exposes the patient to previously avoided situations and aims to change the client's relationship with their thoughts and emotions so that they are no longer viewed as symptoms (22). The ultimate goal is to change these painful thoughts and feelings from the old form, i.e., symptoms of traumatic abnormality that prevent a meaningful and rich life, to a newer form, i.e., natural human experiences that are parts of a rich and meaningful life (23). Due to these characteristics, i.e., acceptance without avoiding negative experiences, ACT can help single women with LTS refrain from interpreting experiences as defining negative events and thus significantly improve their overall mental health (24).

Early maladaptive schemas can lead to Long-Term Singleness (LTS) by interacting with negative life events, creating cognitive vulnerability and making individuals susceptible to dysfunctional attitudes, helplessness, and mental disorders (25). Schema Therapy (ST) is a new and integrated approach that is primarily based on developing concepts and methods of classical cognitive-behavioral therapy. It has integrated the

principles and basics of cognitive-behavioral therapy, attachment, gestalt, object relations, constructivism, and psychoanalytic approaches into a therapeutic model, making it a valuable concept (26). Some early maladaptive schemas, such as emotional deprivation or dependence, play an essential role in the incidence of mental disorders and LTS after love failure (27). Therefore, ST can help these individuals by identifying and targeting these maladaptive schemas. Based on the aforementioned material, this research aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and ST on the psychological well-being and cognitive distortion in single women with LTS.

## 2. Methods

This study was a quasi-experimental designed by pre-test-post-test with a control group. The statistical population of interest was all single women with LTS in Ahvaz, Iran in 2022. A sample of 45 single women with LTS was selected using purposive sampling and randomly assigned into either the ACT group, the ST group, or the control group. To accomplish random assignment, 30 women were randomly assigned into the experimental group and 15 women to the control group, utilizing a table of random numbers. Then, the women in the experimental groups were randomly divided into the ACT and ST groups. The adequacy of the sample size was confirmed through G\*Power software ( $\alpha=0.05$ , effect size=1.12, and power test=0.90) (28). The sample size was calculated based on the psychological well-being variable. The mean and standard deviation of this variable for the experimental and control groups were  $70.33\pm 8.16$  and  $59.53\pm 7.80$ , respectively. The inclusion criteria for the study were women between the ages of 18 and 30 who had experienced a failed romantic relationship and were single. Women who scored more than 20 on the Love Trauma Inventory (LTI) were selected to participate in the research. The exclusion criteria were having any psychological disorder, taking psychiatric drugs, not having multiple short-term romantic relationships, and previous marriage, divorce, or the death of a spouse.

### 2.1. Instruments

**Psychological Wellbeing Scale (PWB):** The PWB was developed by Ryff (29) to measure

psychological well-being. This questionnaire consists of 18 items that are categorized into six factors including autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance. Participants rate their agreement with each item on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). A higher score on the PWB indicates higher levels of psychological well-being. Bayani and colleagues (30) reported a test-retest reliability coefficient of 0.82 for the PWB. In the current study, the Cronbach's alpha for this instrument was 0.87. The content validity of the PWB was also evaluated and confirmed by 12 psychology experts, with a content validity ratio (CVR) of 0.94 and a content validity index (CVI) of 0.91.

### Interpersonal Cognitive Distortion Scale (ICDS):

The ICDS was developed by Hamamci and Buyukozturk (31) to assess cognitive distortions in interpersonal relationships. This scale consists of 19 items that are divided into three subscales including interpersonal rejection (8 items), unrealistic relationship expectations (8 items), and interpersonal misunderstanding (3 items). Participants rate their agreement with each item on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score ranges from 19 to 95, with higher scores indicating higher levels of cognitive distortions in interpersonal relationships. Mahdoodizaman and colleagues (32) reported a Cronbach's alpha coefficient of 0.67 for the Persian version of the ICDS. In the present study, the Cronbach's alpha for this instrument was 0.79. The content validity of the ICDS was also confirmed by 12 psychology experts, with a CVR of 0.91 and a CVI of 0.89.

### 2.2. Procedure

After obtaining the necessary approvals to conduct the research, including approval from the ethics committee of the university (IR.IAU.AHVAZ.REC.1400.161), the researcher contacted specialized psychology and family counseling clinics in Ahvaz, Iran specifically the Beynolmelal, Nilofarane, Tolo, and Mehrana centers, to request their cooperation. Single women with LTS were identified among their clients. Once the required number of participants was determined, an initial interview was conducted with each participant, during which the researcher explained the research

objectives and ethical principles, addressed any questions they had, and obtained their written consent. The participants were then randomly assigned into one of three groups including ACT, ST, or control. The ST group received ten 90-minute sessions every week, while the ACT group participated in eleven 90-minute sessions per week. Each experimental group received the specified number of training sessions according to their assigned treatment, while the control group did not receive any intervention and was placed on a waiting list. Upon completion of the research, an intensive course of ACT and ST sessions was provided to the control group. Tables 1 and 2 provide a summary of the treatment sessions for the ACT and ST groups (33, 34). In the final session, the experimental groups completed the research questionnaires as a posttest.

### 2.3. Statistical Analyses

This study utilized descriptive measures, such as mean and standard deviation, for descriptive statistics, and analysis of covariance (ANOVA) for inferential statistics. The Kolmogorov-Smirnov test was conducted to assess the normal

distribution, and Levene's test was used to evaluate the homogeneity of variances. Bonferroni's post hoc test was employed to compare the means. Additionally, the Chi-square test and paired t-test were used to compare demographic variables between the experimental and control groups. Data analysis was performed using SPSS version 26.

### 3. Results

The mean and standard deviation ( $\pm$ SD) of the age of the participants were  $22.73\pm 3.24$  years in the ACT group,  $25.03\pm 3.70$  years in the ST group, and  $24.53\pm 3.29$  years in the control group. Moreover, the mean and SD of the duration of single women's relationships were  $12.87\pm 5.57$  months in the ACT group,  $17.07\pm 6.62$  months in the ST group, and  $14.8\pm 5.17$  months in the control group. In the ACT group, 10 participants (66.67%) had a bachelor's degree, and five (33.33%) had a master's degree. In the ST group, 11 participants (73.33%) had a bachelor's degree, and four (26.67%) had a master's degree. In the control group, 10 participants (66.67%) had a bachelor's degree, and five (33.33%) had a master's degree (Table 3).

**Table 1:** A summary of acceptance and commitment therapy sessions

Session	Content
First	Summarizing and introduction
Second	Introducing the concept of creative helplessness, and hungry tiger metaphor
Third	Continuing creative hopelessness, fighting the monster metaphor
Fourth	Control is the problem, the polygraph metaphor
Fifth	Control is the problem, the two scales metaphor, the key to fight and pure emotions against impure ones
Sixth	Control is the problem, the chocolate cake metaphor, mindfulness with mindful breathing exercises
Seventh	Detachment from unpleasant thoughts and feelings, the numbers metaphor, the passengers on the bus metaphor
Eighth	Detachment, willingness and acceptance, the lion metaphor, the soldiers in the parade exercise, mindfulness exercises
Ninth	Detachment, self as context, the tombstone exercise, relationship between goals and values
Tenth	Evaluation of values, self as context, the chessboard metaphor, clarification of the values and commitment
Eleventh	Review and summing up

**Table 2:** A summary of schema therapy sessions

Session	Content
First	Introducing the program, establishing communication and empathy, evaluating the group's initial state
Second	Defining ST, introducing the concepts of ST and its application
Third	Teaching cognition of early maladaptive schemas, accurately and scientifically learning the concepts of the schemas
Fourth	Introducing the areas of early maladaptive schemas and their recognition
Fifth	Teaching cognition of the concept of cognitive coordination and ineffective coping responses
Sixth	Assessing and teaching ST cognition and recognition of individual early maladaptive schemas
Seventh	Using cognitive strategies of ST and correcting ineffective coping styles
Eighth	Using experimental strategies of ST, changing and improving the emotional level of incompatible schemas
Ninth	Teaching pattern-breaking methods, substituting healthy and effective behaviors for coping and maladaptive behaviors
Tenth	Summing up, giving the post-test

**Table 3:** Demographic variables of the single women with Love Trauma Syndrome

Variables	ACT	ST	Control	P
Mean (SD) age (years)	22.73±3.24	25.03±3.70	24.53±3.29	0.080
Duration of the relationship (months)	12.87±5.57	17.07±6.62	14.8±5.17	0.070
Education	Bachelor's degree (n (%))	10 (66.67%)	10 (66.67%)	0.901
	Master's degree (n (%))	5 (33.33%)	5 (33.33%)	

ACT: Acceptance and commitment therapy; ST: Schema therapy; SD: Standard deviation

**Table 4:** Mean ( $\pm$ SD) of the research variables in the experimental and control groups

Variables	Phases	ACT	ST	Control	P (between group)
		Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Psychological well-being	Pretest	60.10±7.76	58.87±7.42	58.33±8.09	0.546
	Posttest	70.33±8.16	65.80±8.31	59.53±7.80	0.042
P (within groups)		0.001	0.023	0.682	-
Cognitive distortion	Pretest	48.00±5.25	50.07±4.89	48.13±4.96	0.290
	Posttest	39.33±5.16	44.00±4.48	47.53±4.50	0.040
P (within groups)		0.001	0.002	0.731	-

ACT: Acceptance and commitment therapy; ST: Schema therapy; SD: Standard deviation

**Table 5:** Pairwise comparison of psychological well-being and cognitive distortion in the posttest phase

Variables	Groups	Mean difference	SE	P
Psychological well-being	ACT - Control	8.00	0.65	0.001
	ST - Control	4.05	0.66	0.001
	ACT - ST	3.94	0.66	0.001
Cognitive distortion	ACT - Control	8.04	0.85	0.001
	ST - Control	5.00	0.86	0.001
	ACT - ST	3.04	0.85	0.003

ACT: Acceptance and commitment therapy; ST: Schema therapy; SE: Standard error

According to Table 4, the mean and SD of psychological well-being were 60.10±7.76 on the pretest in the ACT group, whereas they were 70.33±8.16 on the posttest. Additionally, the mean and SD of cognitive distortion were reported as 48.00±5.25 and 39.33±5.16 on the pretest and posttest, respectively. Moreover, the mean and SD of psychological well-being were 58.87±7.42 on the pretest in the ST group, whereas they were 65.80±8.31 on the posttest. Furthermore, the mean and SD of cognitive distortion were reported as 50.07±4.89 and 44.00±4.48 on the pretest and posttest, respectively. The mean and SD of psychological well-being were 58.33±8.09 on the pretest in the control group, whereas they were 59.53±7.80 on the posttest. Additionally, the mean and SD of cognitive distortion were reported as 48.13±4.96 and 47.53±4.50 on the pretest and posttest, respectively.

Levene's test for psychological well-being ( $F=1.29$ ,  $P=0.211$ ) and cognitive distortion ( $F=1.11$ ,  $P=0.281$ ) confirmed the homogeneity of variance. The Kolmogorov-Smirnov test for normal score

distribution verified the normal distribution of scores in psychological well-being ( $Z=0.601$ ,  $P=0.463$ ) and negative effect ( $Z=0.452$ ,  $P=0.401$ ). According to the results of analysis of covariance (ANOVA), there were significant differences among the ACT, ST, and control groups in psychological well-being ( $F=74.08$ ,  $P<0.001$ ) and cognitive distortion ( $F=45.10$ ,  $P<0.001$ ).

Table 5 presents the results of the post hoc Bonferroni test, which compares the means of psychological well-being and cognitive distortion between the experimental groups and the control group on the posttest. According to the results, a significant difference was observed between the control group and the ACT group in terms of psychological well-being ( $P<0.001$ ). Additionally, a significant difference in psychological well-being was found between the control group and the ST group ( $P<0.001$ ). Furthermore, the ACT group exhibited significantly higher psychological well-being compared to the ST group. The results also indicated a significant difference between the control group and the ACT group in terms of cognitive

distortion ( $P < 0.001$ ). Similarly, a significant difference in cognitive distortion was observed between the control group and the ST group ( $P < 0.001$ ). The ACT group showed a significantly lower level of cognitive distortion compared to the ST group. Based on the findings of this study, it can be concluded that ACT intervention was more effective than ST in improving the psychological well-being and reducing the cognitive distortion of women.

## Discussion

This study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Supportive Therapy (ST) on psychological well-being and cognitive distortion in single women with long-term singleness (LTS). The results showed a significant difference between the ACT and control groups in psychological well-being and cognitive distortion, favoring the former. This finding is consistent with previous studies (21, 35, 36). Kianpour Barjoe and colleagues (21) reported that ACT was an effective intervention in reducing stress in women with breast cancer. Hasanzadeh and colleagues (36) reported that ACT was effective in improving psychological well-being in women with a history of infertility.

The ACT approach improved psychological well-being in single women with LTS. Instead of ignoring emotions and inner experiences, teaching ACT promotes awareness and acceptance of feelings and inner emotional experiences, allowing individuals to view them from a fresh perspective. This can lead to a sense of psychological well-being. ACT is considered one of the therapies that can positively impact psychological well-being. It fosters a non-judgmental and transcendent awareness that helps individuals clearly see and accept emotions and physical phenomena as they occur (22). Rather than solely addressing and eliminating traumatic factors such as emotional failure, this approach assists clients in accepting their emotions and achieving greater psychological well-being and mental health. A person who positively accepts and understands failure is expected to experience a higher level of psychological well-being. The ACT intervention teaches individuals to set important, achievable, and measurable goals for themselves. This aspect enables individuals to continuously improve their lives through ongoing learning and experience (21). An individual who generally feels satisfied with their

self-assessment, talents, abilities, and activities, as well as their past experiences, will exhibit desirable psychological functioning. Ultimately, by employing techniques that promote psychological flexibility, ACT enhances psychological well-being in people with LTS.

The ACT approach also reduces cognitive distortions in single women with LTS. Cognitive distortions lead to ineffective attitudes towards important life events, including potential failures in love, and arise when information processing is incorrect or ineffective (10). Continuous distortions can result in discomfort or mental disorders. These distortions further hinder a person's ability to adapt to failures. Human history is the culmination of our knowledge and thoughts, with everything dependent on our attitude (16). Cognitive distortions have an internal origin; individuals who experience excessive distress or act contradictory to their own interests often exhibit emotions such as fear and sadness, which contribute to cognitive distortions in their thinking (12). ACT aims to change the client's relationship with their thoughts and emotions, no longer viewing them as symptoms (24). Due to its characteristics, particularly acceptance without avoidance of negative experiences, ACT could help single women with LTS in reframing their experiences as events that are not inherently negative, thereby significantly reducing their cognitive distortions (23).

The results indicated a significant difference in psychological well-being and cognitive distortion between the control and ST groups, favoring the latter. The ST approach improved the psychological well-being of single women with LTS. This finding is consistent with previous study (26). It enables individuals with LTS to reflect on their inner world and experiences, encompassing physical sensations, emotions, thoughts, beliefs, and values. It also provides them with a pathway to overcome life traps and fulfill their core emotional needs. This strategy delves into deeper levels of cognition and aims to address the root cause of the problem. It has also been proven as successful factor in treating disorders such as anxiety and depression, while enhancing happiness, mental health, and psychological well-being (37).

ST effectively reduced psychological distortions in single women with LTS. By employing ST

to identify and challenge problematic beliefs, normalization techniques were implemented to rectify cognitive distortions experienced by individuals (38). Psychological distortion, which occurs following LTS, leads to inaccurate assumptions and biased thinking. These biases detach individuals from reality and give rise to misunderstandings in personal and interpersonal behaviors (10). ST is capable of pinpointing and addressing maladaptive schemas, offering significant assistance to those with LTS.

The results indicated a notable disparity in psychological well-being and cognitive distortion between the ST and ACT groups, favoring the latter. ACT exhibited a greater impact on psychological well-being and cognitive distortion compared to ST in single women with LTS. Although both therapeutic approaches improved psychological well-being and rectified cognitive distortion, the variation in their effectiveness on the two variables may be attributed to the fact that ACT cultivates a different perspective towards LTS. This shift enables participants to perceive problems stemming from LTS as distinct events rather than an inherent part of themselves. Moreover, the results suggested that ACT significantly contributed to correcting cognitive distortion and enhancing psychological well-being.

#### 4.1. Limitations

Both therapeutic approaches were administered by a single therapist, which introduces the potential for bias. The statistical population and research sample exclusively consisted of unmarried girls with emotional breakdowns in Ahvaz, Khuzestan Province, Iran. Consequently, the generalizability of the findings to other populations and genders should be considered with caution. It is recommended that future studies include both male and female participants to gain further insights into the effectiveness mechanisms of both therapeutic approaches and facilitate gender-based comparisons. Additionally, future studies should explore other variables such as levels of religiosity and economic status, and their potential impact on the results.

## 5. Conclusion

ACT and ST improved psychological well-being and reduced cognitive distortions in single women

with LTS. The results also indicated that, compared to ST, ACT was more effective in improving psychological well-being and reducing cognitive distortions in single women suffering from LTS. Based on these findings and considering the role of ACT and ST, it is possible to assist women with LTS in achieving psychological well-being and alleviating their psychological problems through educational and psychotherapy workshops.

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## Ethical Approval

The Ethics Review Board of Islamic Azad University, Ahvaz branch, Iran approved the present study with the code of IR.IAU.AHVAZ.REC.1400.161. Also, written informed consent was obtained from the participants.

**Conflict of Interest:** None declared.

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