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Examining the Role of Difficulty in Emotional Self-Regulation, Impulsiveness and Defensive Mechanisms in Discriminate Smokers and Non-Smokers Students

Moslem Abbasi[a]*, Shahriar Dargahi[b], Mohammad Javad Bagiyan Koole Marz[c], Mojtaba Bakhti[d], Abdollah Dargahi[b]

[a]Department of Psychology, University of Salman Farsi, Kazeroon, Iran.
[b]Young Researchers and Elite Club, Parsabad Moghan Branch, Islamic Azad University, Parsabad, Iran.
[c]Department of Psychology, Razi University, Kermanshah, Iran.
[d]Department of Psychology, Ferdowsi University, Mashhad, Iran.
*__Correspondence__ should be addressed to Dr. Moslem Abbasi; **Email**: abbasi@kazeronsfu.ac.ir

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Background & Aims of the Study: It is believed that immature defensive mechanisms and impulsiveness make people vulnerable to smoker and drugs, and these individuals experience emotions that are more negative and have less options for reducing their psychological disorders. The study sought to determine the role of difficulty in emotional self-regulation, impulsiveness, and defensive mechanisms in discriminate smoker and non-smoker students.

Materials & Methods: This study is a case-control study. The sample consisted of 140 smoker students, and 140 non-smoker students who were studying at Nourabad PNU (Payam-e-Noor University) at 2013-14. For collecting data, Difficulty Emotion Regulation Scale (DERS), Impulsiveness Scale, and Defense Style Questionnaire (DSQ) were used. For data analysis, discriminate analysis is technique was applied, using SPSS.16 Software.

Results: The results showed that 74% of the variance of 6 variables of emotional denial, emotional clarity, deregulation, cognitive impulsiveness, mature defensive mechanism and immature defensive mechanism explain the distinguishable features between the two groups of smokers and nonsmokers.

Conclusions: The results showed that the smoker and non-smoker students could be distinguished by emotional denial, emotional clarity, deregulation, cognitive impulsiveness and immature defensive mechanisms.

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Background

Smoker is one of the most important causes of premature death worldwide, yet the most avoidable one (1). Cigarette is prevalent more than other forms of tobacco consumption (2). It seems that a range of factors such as psycho-pharmacological effects of nicotine, genetic features, and environmental factors contribute

to the amount of smoker dependency and its quitting problems (3). In addition to the foregoing many mediating factors such as intelligence, socioeconomic status, social and environmental factors, like number of smoker friends or rejection from family should be considered in smoker (4). Rahmati and Tarmyan (5), in the case of students taking drugs reported smoker prevalence 17.8, hookah 30.6, alcohol drinks 07.13, 06.02 cannabis, pillX1.8, opium 4.4, heroin0.8, and crack 1.1. The studies showed that smokers use cigarette with the aim of getting help from its enjoyable effects (6).

One of the variables which with cigarette smokers are involved is the difficulty with emotional self-regulation. Emotional self-regulation refers to actions intended to change or modify one's emotional state. The general concept of emotional self-regulation implies the cognitive methods for manipulation of input information of emotion-receiver (7). Emotional self-regulation strategies include 9different cognitive coping strategies, i.e. self-blame, acceptance and objectivity, mental rumination, positive refocusing, refocus on planning, positive reassessment, facilitating the event through universality, catastrophe-making, and blame others (8). Clearly emotional responses to stressful events can be set using the Cognitive Coping Strategies (9). Social learning theory is based on the idea that partial belief system maintains addictive behavior, therefore, in order to intervene; cognitive restructuring should be used (10).

Studies suggest that smokers have higher levels of impulsiveness in comparison with non-smokers (11). Impulsiveness can be evaluated from various aspects. In a comprehensive definition of impulsivity can be explained as preferring immediate rewards, desire for adventure, search for new senses, finding easy ways for accessing to the reward, lack of perseverance, insistence on doing things, as well as short-time individual responses (12). According to this definition it is clear that large amounts of impulsiveness alone are not helpful and in fact dysfunctional. For example, tendencies of impulsive people for experiencing psychotropic drugs and the constant use of them could be pointed out (13). Impulsiveness can be defined as the equivalent for the reduction of delay value, i.e. the tendency to choose small but fast rewards instead of larger but delayed rewards (14).

Another variable that can have a major role in smoker is the defensive mechanisms. It seems that there is a relationship between maladaptive defensive mechanisms and smoker consumption. To reduce negative emotions in everyday life, individuals use nicotine. Results showed that those who misuse substance and smoker mostly use immature defensive mechanisms (15). These people are unable to deploy effective defensive mechanisms in stressful situations and move towards destructive behaviors such as smoker cigarette or materials (16). Akbari and et al in a research on students showed that there is a significant relationship between the developed and underdeveloped defensive mechanisms, and addiction acceptance (17). Brody and Carson (18) in a research on the defensive mechanisms concluded that addicts mostly use immature and mental harassment defensive mechanisms. Ahmadi and et al (19) found that scores of addicts compared to ordinary group were more in the variables such as immature defensive styles, mental harassment, characteristics of neurosis, and extroversion, and were less in the variable of mature defensive styles.

Kekkonen, Kinnunen, and Pulkkinen (20) in a study concluded that low self-control of emotions in adolescence predicts the dependence of the adult to tobacco. Vassileva, Gonzalez, Bechara, and Martin (21) showed that smoker provide cognitive impulsiveness, thus makes the process of decision-making difficult. Verdejo, Rivas, Vilar, and Perez (22) found that people with dependence on tobacco

have a low consciousness of their strategies, defective emotional self-regulation, and higher impulsiveness in comparison to normal people. The results of a study by Schreiber, Grant, and Odlaug (23) showed that individuals who have high mal-emotional regulation compared to individuals who have low mal-emotional regulation significantly got higher scores in the variables such as impulsiveness, injury avoidance, and logical reasoning, and immature defensive mechanisms. Studies (24,25) have shown that chronic use of drugs, particularly cocaine, methamphetamine, and smoker is associated with impaired cognitive and emotional functions.

In general, it seems that difficulty in emotional self-regulation, impulsiveness, and immature defensive mechanisms can be considered as the determiners for smoker. Because of the increasing number of smoker students, and tendencies toward substance using, examining their backgrounds seems necessary. Therefore, considering the fact that very few studies have been done on these variables in Iran, and the increased number of smoker college students, this study seems necessary. Also according to the researches mentioned above, it seems that defensive mechanisms, impulsiveness, and difficulty with emotional self-regulation play important roles in students' attitudes toward smoker and materials. However, the importance of defensive mechanisms and impulsiveness in discriminate smoker and non-smoker students was less studied. Therefore, examining these variables can have an important role in discriminate these students.

Aims of the study: The study sought to determine the role of difficulty in emotional self-regulations, impulsiveness, and defensive mechanisms in discriminate smoker and non-smoker students.

Materials & Methods

This study is a case-experienced study. The sample consisted of all students who were studying at Nourabad PNU (Payam-e-Noor University) at 2013-14 (around 3,200 people). The smoker students were those individuals who had at least 3 years of smoker experience (at least ten cigarettes a day). The non-smoker students were those individuals who had no smoker experience, even a single time. The sample of this study consisted of 140 smoker students, and 140 non-smoker students, respectively. Meanwhile, the non-smoker group had the properties of age, university major, nativity, and, non-nativity. Based on a correlation research, the maximum sample size for each group was set 134, with statistical power of 90% and 90% reliability. To increase the external validity of the study, 140 subjects per group were considered.

Difficulty Emotion Regulation Scale (DERS): Difficulty Emotion Regulation Scale is a 36-item scale developed by Gratz and Roemer (26) is designed with a total score and six scores in its subscales. They are emotional denial, inability to use behaviors appropriate to the target, difficulty with impulse control, lack of emotional consciousness, poor access to emotional regulation strategies, and lack of emotional clarity. The answer is based on a 5-point Likert scale. The researchers examined the reliability and validity of this scale in a sample of 479 undergraduate students as well. The scale of the total score (Cronbach's alpha) was 0.93 and for all subscales (alpha coefficients) was more than 0.80, which showed a good internal consistency, and its

test-retest reliability, at a period of 4-8weeks, was reported proper (26). Heydari, Ehteshamzade, and Halajany (27) evaluated the reliability and validity of this scale in Iran. The reliability of the scale was calculated using Cronbach's alpha and split half, which were 0.84, and 0.76 (P<0.01, 0.54, r=n=100), respectively and indicated a good reliability of the scale in Iran. It is noted that higher scores on this scale indicate greater difficulties in emotional regulation. In this study, Cronbach's alpha reliability coefficient of the scale for all participants was 0.93, and was for the subscales of emotional denial0.84, difficulty with impulse control 0.76, lack of emotional consciousness 0.76, and emotional clarity 0.75.

Defense Style Questionnaire (DSQ):

Defense Style Questionnaire has 40 items on a 9-point Likert scale, which measures twenty defensive mechanisms based on three styles: mature defensive style, mental harassment, and immature defensive style. For scoring the test, for each defensive style, the average scores of that style's mechanisms are calculated. Mature defensive style includes perfection, humor, prediction, or elimination mechanisms. Mental harassment includes eradication, pretended friendliness, idealism, and reaction formation mechanism. Immature defensive style includes 12 defensive mechanisms: projection, verbal aggression, transition to practice, isolation, worthless making, private fantasy, denial, displacement, segregation, separation, justifying, and physical constructing (28). Cronbach's alpha coefficients in Persian scale for each of mature, immature, and mental harassment defensive styles in a student samples for all subjects were 0.75, 0.73, 0.74, for male students 0.74, 0.74, 0.72, and for female students 0.75, 0.74, 0.74, respectively. Retest coefficients in an interval of 4 weeks for all subjects were 0.82, and for boys and girls subjects were 0.81, and 0.84, respectively (29). Besharat (30) reported the reliability coefficient of the scale 0.81, which indicates a good validity of the questionnaire in Iran. In this study, Cronbach's alpha reliability coefficient of the scale for all participants was 0.78, and for the subscales of mature and immature defensive mechanisms were 0.76, and 0.72, respectively.

Barratt impulsiveness scale:

Impulsiveness scale (31) is made by Barrat. This scale has 30 items, and participants answer to them in a 4-point scale (never, sometimes, often, and always). This scale measures three components of deregulation, behavioral and cognitive impulsiveness. In a preliminary study, Poorcord (32) reported Cronbach's alpha coefficient and test-retest reliability of this scale (after one month) 0.87, and 0.79, respectively. In this study, Cronbach's alpha reliability coefficients of this scale were 0.74, and 0.72 for deregulation and cognitive impulsiveness, respectively.

In order to collect data in this study, firstly the smoker and nonsmoker students were determined. Then the objectives of the study were explained to each subject and questionnaires were given to the participants. Then they were asked to read the questions carefully and give the desired responses base on their characteristics. The collected data were statistically analyzed using discriminate analysis.

Data analysis: For data analysis, descriptive statistical methods (mean±SD) and discriminate analysis were used through stepwise and entry methods. The statistical analysis was done using SPSS version 16 at a significance level of 0.05.

Results

The mean and Standard Deviation for age of the participants were 21.18and1.86, respectively, with the age range of 20 to 28 years. The mean and Standard Deviation for the duration of cigarette smoker was 2.12±4.36 years. Furthermore, 65 percent (130 people) were native students and 35% (70 people) were non-native. On the other hand, 58% (58 people) of the participants had tendency toward quitting smoker.

To investigate the indifference between the age's mean of the two groups independent *t*-test was used. The results of independent t-test showed that demographic variables did not vary between smoker and non-smoker students ($p>0.05$).

Table1) Mean and standard deviation variables in smoker and non-smoker students

Group variable	smoker M± SD	N 140	nonsmoker M± SD	N 140
Emotional denial	18.13±1.83	140	11.74±1.45	140
Difficulties with impulse control	16. 31±2.08	140	12.08±1.26	140
Lack of emotional consciousness	16.87±2.23	140	10.76±1.40	140
Emotional clarity	14.96±1.78	140	9.37±1.06	140
Deregulation	23.53±2.04	140	16.02±1.90	140
Cognitive impulsiveness	22.88±2.90	140	15.81±1.87	140
Mature defensive mechanism	7.17±1.52	140	10.70±1.80	140
Immature defensive mechanism	16.17±2.17	140	10.56±1.34	140

Looking at the contents of Table 2, according to Wilks Lambda smaller than 1 and significance less than 0.05, all functions are significant and the functions of each variable has a good diagnostic power for explaining the dependent variable, i.e. two groups of smoker and non-smoker students.

Table 2) Summary of data related to the discriminate function of predictive variables in separated way

Predictive variables	Wilks Lambda	F	DF1	P
Emotional denial	0.210	670.639	1	P<0.001
Difficulties with impulse control	0.398	269.132	1	P<0.001
Lack of emotional consciousness	0. 270	481.120	1	P<0.001
Emotional clarity	0. 215	651.462	1	P<0.001
Deregulation	0. 215	817.650	1	P<0.001
Cognitive impulsiveness	0. 320	377.594	1	P<0.001
Mature defensive mechanism	0. 470	200.325	1	P<0.001
Immature defensive mechanism	0. 291	433.874	1	P<0.001

As shown instable 3, both in simultaneous discriminate analysis (which combination of eight variables were analyzed together), and in the stepwise discriminate analysis (other six remaining variables were analyzed), according to the small value of Lambda, the high value of chi-square, and the significance of $P\leq0.001$, the deducted function has a good diagnostic ability to explain variance of the dependent variable, i.e. two groups of smoker and non-smoker students.

As shown in Table 3, Wilks Lambda test shows the differences between groups with respect to the 8 variables using simultaneous discriminate analysis method, and 6 variables using stepwise method. The Wilkes lambda is smaller discriminate function, and is more accurate.

Table 3) Conventional discriminate function and important information of the function by stepwise and simultaneous discriminate analysis methods

Related important information	discriminate analysis	
Discriminate function	**The simultaneous method**	**stepwise method**
Special values	14.2	14.0
Conventional correlation	0.86	0.8
Eta square	0.74	0.73
Wilks Lambda	0.06	0.069
Chi-square	473.6	474.9
Degree of freedom	8	6
Significance of discriminate function	P<0.001	P<0.001
Score center for smokers	3.7	3.7
Score center for non-smokers	-3.7	-3.7
Prediction of collective	93.5	92.5
Joining of Kepa Coefficient	1	1
Significance of Kepa coefficient	P<0.001	P<0.001

As shown in Table 3, the value of the discriminate function using the simultaneous discriminate analysis method was 0.066, and the discriminate function using stepwise method was 0.069. The high value of chi-square indicates goodies crimination of the function. As shown in Table3, this amount is 473.658, and 474.995 for the only discriminate function using simultaneous discriminate analysis method and stepwise method, respectively. According to the significance of the discriminate function, chi-square value obtained in $p \leq 0.001$ is significant. Hence, it can be said that the obtained discriminate function significantly has diagnostic power in both levels criteria variable. Data Center for the discriminate function using simultaneous discriminate analysis method was 3.7 forth smoker group, and was -3.7 for the non-smoker group, and it was 3.7 for the smoker group, and -3.7 for non-smoker using stepwise method. This means that the cut-off point between dependence and independence to smoker among male students for the discriminate function was zero. The obtained discriminate function is an appropriate diagnostic function in discriminate smoker and non-smoker students. According to Table 4, the discriminate function obtained with simultaneous discriminate analysis method (8 predictive variables) was generally 93.5 students and with stepwise method (6 predictive variables) was 92.5 students, which have been classified correctly.

In accordance with the information contained in Table 4, after representing 8 variables, 4 remaining variables were analyzed. In the first step, emotional denial, in the second step, the deregulation, in the third step immature defensive mechanism, in the fourth step lack of emotional clarity, in the fifth step developed defensive mechanism, and in the sixth step behavioral impulsiveness variables were analyzed with the F for each of the six variables was significantly $p \leq 0.001$.

As Table5 shows, the only discriminate function presented by two methods of analysis, four sets standard and nonstandard coefficients, structural coefficients and classification coefficients. Standard coefficients are placed according to Z scores, and runs simultaneous regression method. These coefficients help to determination of the contribution of variables in different groups. As the standardized coefficients shown in column 6 of the table, using simultaneous discriminate analysis and stepwise methods, emotional denial variable has the largest share in discriminate the two groups. Therefore, it could be concluded that the besting dictator for separating the groups is emotional denial.

Table 4) Summary of data related to the stepwise discriminate analysis with Wilkes Lambda of 6 predictive variables

Phase	Entry	Number of variables	Wilks Lambda	DF1	Exact F		
					data	DF1	P
1	Emotional denial	1	0.210	1	639.6	1	P<0.001
2	Deregulation	2	0.111	2	615.7	2	P<0.001
3	Immature defensive mechanism	3	0.085	3	105.6	3	P<0.001
4	Lack of emotional clarity	4	0.072	4	723.5	4	P<0.001
5	Mature defensive mechanism	5	0.069	5	472.0	5	P<0.001
6	Cognitive impulsiveness	6	0.066	6	360.4	6	P<0.001

Table 5) Standardized, non-standardized, structural, and categorized coefficients of discriminate function by simultaneous and stepwise methods

	Simultaneous method					Stepwise method				
Predictive variable	Standard coefficient of discriminate function	Non-standard coefficient of discriminate function	Structural coefficient	Categorized coefficients of discriminate function in smoker and non-smoker groups		Standard coefficient of discriminate function	Non-standard coefficient of discriminate function	Structural coefficient	Categorized coefficients of discriminate function in smoker and non-smoker groups	
Emotional denial	0. 50	0.30	0.51	6.38	4.11	0. 50	0. 30	0.51	6.24	3.97
Difficulties with impulse control	0. 09	0.055	0.507	2.576	2.16	-	-	0. 24	-	-
Lack of emotional consciousness	-0. 02	-0.012	0.507	-1.263	-1.17	-	-	0. 44	-	-
Emotional clarity	0.35	0.244	0.436	4.400	2.57	0. 36	0. 25	0. 51	4.37	2.50
Deregulation	0. 486	0.246	0.414	6.905	5.06	0. 49	0. 24	0. 50	6.87	5.01
Cognitive impulsiveness	0. 19	0.078	0.386	2.159	1.57	0. 20	0. 08	0. 38	2.28	1.67
Mature defensive mechanism	-0. 21	-0.128	0.326	3.873	4.83	-0.21	-0.12	-0.28	3.82	4.78
Immature defensive mechanism	0. 38	0.214	-0.281	4.879	3.27	0.39	0. 21	0.41	4.91	3.29
Fixed number	-	16.17	-	-261.1	-139.8	-	-15.8		-250.6	-132.2

In table 5, using simultaneous discriminate analysis and stepwise methods for showing structural coefficients, emotional denial, difficulty in impulse control, lack of emotional consciousness, emotional clarity, deregulation, cognitive impulsiveness, mature defensive mechanism, and immature defensive mechanism, respectively have the highest correlation with the discriminate function variable with eight indicator variables. As shown in Table 5, respectively, the variables of emotional denial, difficulty in impulse control, lack of emotional consciousness, emotional clarity, deregulation, cognitive impulsiveness, mature defensive mechanism, and immature defensive mechanism, respectively have the highest correlation with the discriminate function with6indicator variables. According to the information given in Table 5, the discriminate function has the most correlation with the variable of emotional denial. Hence, wean even name the only discriminate functions emotional denial.

Discussion

The study sought to determine the role of difficulty in emotional self-regulation, impulsiveness, and defensive mechanisms in discriminate smoker and non-smoker students. Emotional denial, lack of emotional consciousness, and emotional clarity are the discriminate functions of the difficulty in the emotional self-regulation in the smoker and non-smoker groups. The results of the research are consistent with 20, 22, 23, 25 findings. In explaining these findings, we can say that emotional intelligences lowing the addicts and is a factor for cognitive impairments of the subjects. Drug-dependent individuals have fundamental weaknesses in recognition of the face's emotional representations, decision making, strategy in self-awareness, and self-regulation. Moreover, the degree of stimulation in this populations high compared tithe normal group. These been palinodes follows that when a persons placed under pressure to use drugs, alcohol, and smoker, poor management of emotions increases the risk of the use of materials. Conversely, managing emotions effectively reduce the risk of substance use. Ability to process and manage emotions makes person in high risk situations to use proper cop in strategies, and show more resistance to drogues (22). In contrast, those with poor management to deal with their negative emotions have tendency toward drug use and smoker (33), therefore, their emotional processing receives a greater damage. People with divergent emotional self-regulation, have problems such as neurosis, introversion, insomnia, fatigue, unhappiness, inability to direct the use unthinking, obsessions, unsettling dreams, irritating unpleasant thoughts, disruptive behaviors outbursts and etc. On the other hand, the inability to deal with emotions and managing them effectively is a factor for using drugs (34). The inability of the addicts to express emotions is because of the lack of emotional competence, inappropriate emotional skills, and the lack of the abilities to solve their conflicts. It seems that, in the criteria of emotional management, decision making, emotion control, and social skills, the people do not have the proper and adequate skills for their lacks and material denial. It can be said the insufficient emotional development, difficulty in organizing behavior, emotions, and negative emotions are the negative features of the

addicts (35). Because of the lack of emotional consciousness, and cognitive dysfunction in processing the feelings, consumers of materials, alcohol and cigarettes are usually unable to identify, understand and describe the ire motions and have limited ability to cope with stressful situations. People who have the ability tore cognize their emotions and their emotional condition express themselves more effectively, can cope better with life's problems, and are more successful in adjustment with environment and others. These people not only have a better mental health, but also consider the negative and stimulating events as opportunities.

The results showed that among passiveness, only cognitive impulsiveness and deregulation distinguish the smoker group from the nonsmoker group. These results are in line with other researches (21,24,25). In explaining these results, we can say that impulsiveness causes people to have less attention to the future, and act without planning, which in turn make the tendency toward smoker. Therefore, a systematic approach to planning for the future could help them in the prevention of material use. Cognitive impulsiveness means to abandon asks unfinished, and show in aggressions too theirs. This component would be more problematic than others for them, because it makes difficult ties in inter personal relationships, and they prefer smoker to get rid of the problem. It seems that the cognitive impulsiveness can make people susceptible touch a pattern physiologically. Cognitive impulsiveness makes problems in concentration, attention, thinking, reasoning, and the overall processing, and thus increases the probability of smoker (31). Disorder indecision-making can be considered as one of the fundamental mechanisms in impulsive behaviors and addiction. Impulsiveness is the factor which makes people vulnerable to addiction in their lives .Because cognitive impulsiveness can disturb the regulation and behavioral management, self-control weakens, decision making becomes difficult, the probability of incorrect and irrational behaviors increases, and finally, health and success expose to risk. In other words, deregulation, and loss of control over cognition and behavior, increased the tendency toward smoker of the students delayed their health and success (31).

The study showed that the immature defensive mechanisms distinguish the smoker group from the nonsmoker group. This result is in line with other research findings (17,18). The result showed that people who have been affected by smoker have more immature defensive mechanisms. In other words, facing with difficult and stressful situations, the ability to analyze, decision-making process, and proper selection of the individual decrease, and the probability of maladaptive behaviors increase. In this concept, smoker could be considered as immature defensive mechanism, in which individuals deal within at the time of problems. Furthermore, it can be said that when the emotional and cognitive information do not percept and evaluate correctly, the organization of cognitions and emotions will not have the optimal performance. Consequently, the possibility of using immature mechanisms in stressful situations increases. According covalent, for reducing cognitive disagreements and to minimize sudden changes in internal and external reality, defensive mechanism automatically act through affecting the

perception's threatening events. In this study, the predominant defensive style of the smoker group was immature and in such cases the person usually faces stress and stressful situation through denial, revocation, hollowing, and changing .In general, difficulty with emotional denial, lack of emotional clarity, deregulation, cognitive impulsiveness, and immature defensive mechanisms had a significant role in discriminate the smoker and nonsmoker students.

Conclusion

Emotional denial, lack of emotional clarity, deregulation, cognitive impulsiveness, and immature defensive mechanisms could be the affecting criteria in smoker and material use. The type of the research and limitation of the study sample limit generalization of the results and interpretations. The sample in this study was number of students. Therefore, generalization to other groups should be applied cautiously. According to the results of this study, it could be suggested, in a practical level, that supplying training programs for coping skills could help to the more use of adaptive and mature mechanisms. At the theoretical level, the research findings could be related to the theories of difficulty in emotional self-regulation, impulsiveness, and defensive mechanisms in tendencies toward smoker, and could raise new questions in relation to this issue.

Footnotes

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Conflict of Interest:
The authors declared no conflict of interest.

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