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ORIGINAL PAPER

A Within-Subject Pilot Feasibility Study of a Gambling Specific SBIRT Intervention Delivered in an Urban HIV/Primary Clinic

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Abstract

Background Although there are few interventions available to provide screening and brief intervention targeted toward problematic gambling, Screening, Brief Intervention and Referral to Treatment (SBIRT) is an evidence-based intervention that has demonstrated effectiveness in reducing gambling behaviors.

Methods The goal of this pilot study was to evaluate the feasibility, acceptability and preliminary outcomes of a gambling specific SBIRT intervention in a medical setting. Fifteen participants were recruited from an urban HIV/Primary Care clinic to receive the gambling specific SBIRT intervention delivered by 3 clinicians. Process and gambling specific outcome measures were evaluated at baseline, immediately after the intervention and at 1-month follow-up.

Results On average, patient participants were 49 years and self-described themselves as male (60%) and Black or African American (86.7%). Three (20%) participants met 4 or more criteria of the DSM-5 gambling disorder. Compared to baseline, those who participated in the intervention decreased both the median number of days gambled (1 days vs. 0 days), as well as the median money gambled at 1-month follow-up ($7 vs. $1). Participants with 4 or more criteria of DSM-5 gambling had the greatest reduction (days gambled: (26 days vs. 21 days); money spent: (($400 vs. $65)). Participants reported that the intervention was acceptable. Clinician participants found the intervention to be easy to deliver.

Conclusions A gambling specific SBIRT intervention was feasible to deliver and acceptable to participants. Gambling specific outcome measures were reduced at 1-month follow-up. A randomized control trial to evaluate the efficacy of the intervention is a recommended next step.

Keywords Gambling disorder · HIV · Brief biosocial gambling screen · Gambling behavior

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Introduction

Screening, Brief Intervention and Referral to Treatment (SBIRT) is an evidence-based intervention with a public health approach that has been successfully developed and implemented in medical and primary care settings for problematic use of a variety of substances. Research evidence for the effectiveness of this approach has most extensively been with those presenting indicators of problematic/at risk alcohol use (Babor et al., 2007; Bien et al., 1993; Wilk et al., 1997), however, brief interventions (BI) have also been found to be effective for a range of non-alcohol and substance use issues (Bernstein et al., 2005; Humeniuk et al., 2012; Martin & Copeland, 2010).

Few interventions are available to provide screening and brief intervention for gambling. Although many studies have demonstrated that brief interventions with disordered gamblers are effective (Cunningham et al., 2009; Hodgins et al., 2009; Petry et al., 2008), these studies have not focused on identifying or providing brief interventions in primary care settings. Research has suggested that there are sizable clinician (Tolchard et al., 2007) and patient factors (Evans & Delfabbro, 2005; McMillan et al. 2004; Pulford et al.; 2009 Tavares et al., 2002) that contribute to reluctance to address the topic of personal gambling activities. To our knowledge, no previous study has sought to obtain both patient and clinician input into the content and process feasibility of providing screening and intervention for problematic/at risk gambling in primary care clinical settings to address clinician and client concerns. This is important as evidence suggests that individuals with risky gambling behaviors- who may comprise 20–25% of the adult population (Morasco et al., 2006)—are likely to experience increased levels of health-related problems and utilize health care services at higher rates than individuals with non/low-risk gambling behaviors.

The goal of this pilot study was to evaluate the feasibility, acceptability and preliminary outcomes of a gambling specific SBIRT intervention in a medical setting.

Methods

Research Design/Research Question

This study evaluated the feasibility/acceptability of a problematic gambling specific SBIRT intervention delivered in an HIV and Primary care clinic. The Problematic/at risk Gambling SBIRT intervention was adapted from a previously developed intervention used to address at risk substance use in order to tailor it to the needs of people who attend HIV primary care clinics. The intervention development followed a stepwise approach based on the Rounsaville behavior intervention development model (Rounsaville, 2001). The intervention followed an iterative method of modifications based on patient and clinician evaluation and expert panel review. The final intervention materials (Figs. 1, 2, and 3) were used in this feasibility study. The present study was reviewed and approved by the Institutional Review Board at the University of Maryland Baltimore.

Study Site

Participants were recruited from an urban HIV/Primary Care clinic affiliated with a University Hospital in Baltimore, Maryland.

Front:

Back:

Fig. 1 Gambling card: provided to patient participants with low risk for gambling. Gambling materials: problem gambling information materials given to patient participants based on results from brief biosocial gambling screen

Fig. 2 Gambling pamphlet: provided to patient participants with moderate risk for gambling

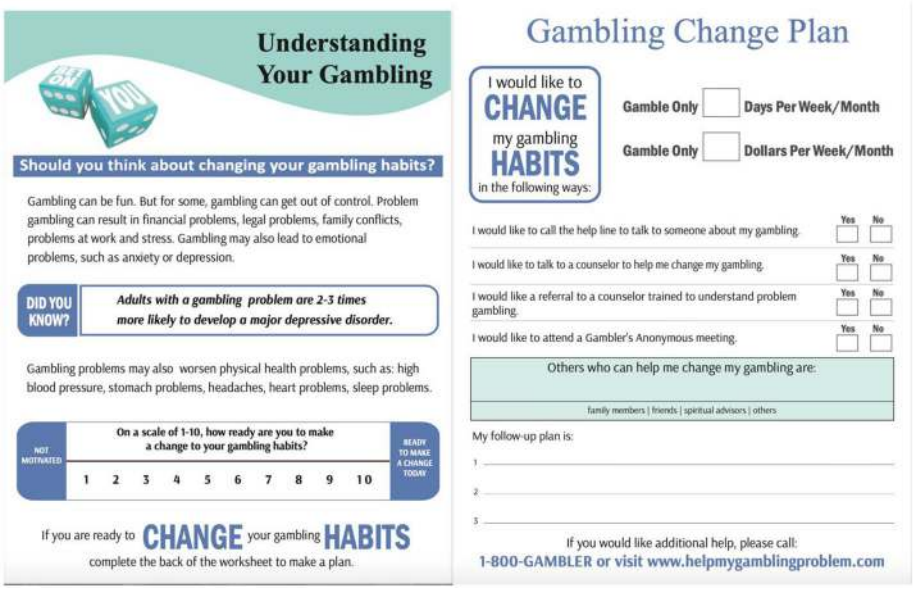

Fig. 3 MI intervention gambling worksheet: provided to patient participants with high risk for gambling

Study Participants:

Patient Participants

People eligible for the study were adults (greater than 18 years of age), receiving care at the HIV clinic, who spoke English, and were able to provide consent to participate in the study. Fifteen patient participants consented to participate in the study. All patient participants had the opportunity to be paid a total of $60 for completing the study ($20 each for the baseline interview, debriefing interview, and follow-up interview), but were paid only for the interviews in which they attended.

Clinician Participants

Clinicians who were eligible for the study included clinicians (medical doctors ($n=2$), nurse practitioners ($n=1$)) who were employed to provide primary and HIV care at the HIV clinic. Clinicians who consented to participate in the study were trained by the primary research team on how to provide the screening and brief intervention. The training focused on: (1) Basic education in medical and psychosocial problems related to problematic/at risk gambling as well as developing rapport with patients. (2) Develop skills to administer problem gambling screening—the Brief Biosocial Gambling Screen (BBGS); and(3) Develop skills to administer a problem gambling brief intervention.

The problem gambling SBIRT intervention was designed to be brief and efficiently delivered during the course of a primary care office visit. The intervention consisted of a brief screening for at risk gambling that included a definition of gambling and examples of gambling behavior, a gateway question and the Brief Biological Gambling Screen. Based

on the results of the brief screening, a clinician would provide a specific educational material (e.g., a business card, worksheet, or a pamphlet; See Figs. 1, 2, and 3). Clients who were labeled as low risk were provided with a business card as their educational material. See Fig. 1. If clients were assessed at moderate risk for gambling, meaning they had gambled at least 5 times in 1 year, they were provided with the pamphlet (See Fig. 2). Patient participants assessed as high risk for gambling were provided with the gambling worksheet (See Fig. 3). All clinicians were debriefed after the completion of the study. The purpose of this debriefing was to gain insight into the clinician experience delivering the intervention. All debriefing interviews with clinicians were audio recorded to ensure that all recommendations from the interviews were appropriately documented. All clinicians were paid $150 for the initial training, study intervention and debriefing.

Study Procedures.

After signing an informed consent document, participants were escorted to a private room in the clinic where they were read assessments out loud and asked to state their responses. Participants were read assessments aloud to ensure questions and answers were fully understood by participants regardless of their reading level. The baseline measures included:

Demographics

Socio-economic characteristics were assessed using standardized questions relating to age, gender, ethnicity, race, marital status, education level, employment, income and housing status.

Gambling Behaviors

An adapted Addiction Severity Index (ASI) Lite (McLellan et al., 1980) was modified to include gambling and used to assess gambling behaviors over the past 30 days. Questions included collecting information about alcohol and drug use, and gambling in different forms (e.g. lottery tickets, scratch offs, casino games, cards, dice, sports/horse, etc.). A time point of 30 days was used because this study sought to evaluate only individuals with current problematic gambling or gambling disorder.

Gambling Disorder

The nine-item criteria from the DSM-5 (American Psychiatric Association, 2013) was used to assess the 12-month prevalence of gambling among participants. Based on DSM-5 criteria, participants with a score of four or above were considered to have gambling disorder.

Readiness to Change

Likert scale-based questions assessing importance, readiness and confidence to change behavior (e.g. How important is it to you to change your gambling behaviors at this time?) were used. Tools that assess readiness to change have been widely incorporated into motivational interviewing intervention protocols.

After completing the baseline interview, the patient participants immediately met with a clinician and received the disordered gambling SBIRT intervention. After receiving the

problem gambling intervention, each participant was again escorted to a private room in the clinic where they received the post-intervention questionnaire to evaluate their views regarding ease, utility and satisfaction with the intervention. These questionnaires were read out loud and participants were asked to state their responses. Approximately one month after receipt of the intervention, patient participants were re-assessed in person by research assistants using the same questionnaires delivered at the baseline interview.

Analysis

Univariate distributions included percentages for dichotomous variables and means for normally distributed continuous variables and medians for non-normally distributed continuous variables. Comparison of means for normally distributed continuous variable was made using two-sided paired t-tests, while comparison of percentages was made using the chi-square method for normally distributed data and Fisher's Exact Test for non-normally distributed data. A correlational analysis was run for the following variables: age, race, marital status, employment, income, housing, gender, education, number of days gambled, and readiness to change. Analysis showed statistically significant correlation between race and income, and between age and housing. Non-white participants were more likely to have lower incomes ($r = -0.6710$, $p = 0.0062$). Older participants were more likely to be housed ($r = 0.5168$, $p = 0.048$). Data analysis used STATA (version15.1).

Results

Brief Biosocial Gambling Screen

Of the 15 original patient participants 40% ($n = 6$) qualified as low risk for gambling. Forty percent ($n = 6$) of patient participants also qualified as moderate risk, and 20% ($n = 3$) of participants qualified as high risk for problem gambling. The same 3 participants who scored high risk for gambling also reported 4 or greater DSM-5 criteria for gambling disorder.

Demographic Characteristics of the Sample.

On average, patient participants were 49 years of age (49.48 years (SD 3.26 years). The majority self-described themselves as male ($n = 9$, 60%) and Black or African American ($n = 13$, 86.7%). The vast majority reported having stable housing ($n = 13$, 86.7%). Homelessness was not reported. Most self-reported graduating high school ($n = 11$, 73.3%). At the time of the study, most reported being unemployed or disabled ($n = 9$, 60%). A majority reported a past history of using alcohol/ drugs ($n = 9$, 60%) and cigarettes ($n = 9$, 60%) (See Table 1).

Gambling Characteristics

Overall, the median amount of money spent on gambling over a period of 30 days was seven dollars. The median number of days spent gambling over a period of 30 days was 1 day. Compared to those who scored 3 or less DSM-5 criteria, those who scored 4 or more DSM-5 criteria, were more likely to spend a greater sum of money ($5 vs. $400) and gamble more days (0.5 days vs. 26 days) over a 30-day period.

Table 1 Baseline demographic and descriptive variables of the study sample

	Total ($N=15$)	DSM-5 (−) ($N=12$)	DSM-5 (+) ($N=3$)
Gender (%)			
Male	60.0	58.3	66.7
Female	40.0	41.7	33.3
Average age (STD)	49.5 (3.2)	48.0 (11.4)	55.3 (18.4)
Race (%)			
White	13.3	16.7	–
Black	86.7	83.3	100
Yearly household income (%)			
< 10 K	33.3	41.7	–
0 K–24.9 K	26.7	25.0	33.3
25 K–49.9 K	26.7	16.7	66.7
> 50 K	6.7	8.3	–
Don't know	6.7	8.3	–
Housing (%)			
Stable	86.7	91.7	33.3
Transitional	13.3	8.3	–
Working status (%)			
Full time	33.3	33.3	33.3
Part time	6.7	8.3	–
Unemployed (disabled)	60.0	58.3	66.7
Alcohol/drug use (%)			
No	40.0	50.0	–
Yes	60.0	50.0	100
Cigarette smoking (%)			
No	40.0	50.0	–
Yes	60.0	50.0	100
Education completed			
Some high school	26.7	33.3	–
High school grad	20.0	8.3	66.7
Some college	26.7	33.3	–
College grad	26.7	25.0	33.3
Gambled			
No	40.0	50.0	–
Yes	60.0	50.0	100

Immediate Post Intervention Outcomes

All participants were asked a series of questions about the importance of changing their gambling behaviors. When asked how important it was to them to change their current gambling behaviors, 84.6% responded that it was not important. When asked how ready they were to change their gambling behaviors, 53.9% responded that they were not ready, 23.1% stated they were somewhat ready, and only 7.7% responded that

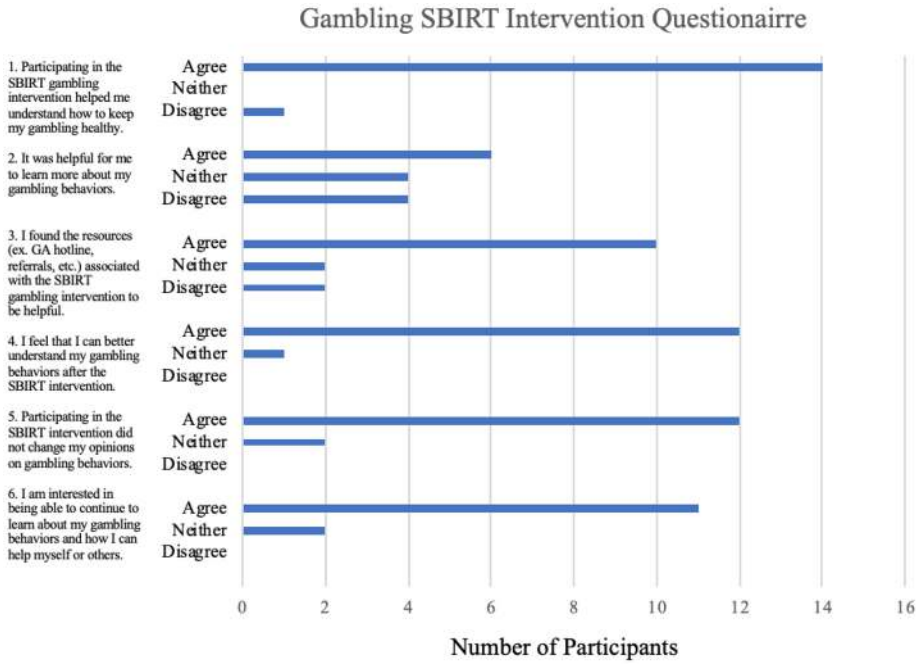

Fig. 4 Patient participant opinion of gambling sbirt intervention and resources

Table 2 Median money spent gambling within the 30-day period for pre and post intervention

	Median money spent gambling within 30-day period pre-intervention ($) ($N=15$)	Median money spent on gambling within 30-day period post-intervention ($) ($N=13$)
All participants	7	0
DSM-5 + gambling*	400	65
DSM-5 -gambling	5	0

*$n=3$ for both pre and post intervention

they were very ready. However, a majority (86.7%) reported that they were very confident that they could change their gambling behaviors at this time.

Participants were also asked to report how helpful the intervention was to them. The majority of patient participants agreed that the SBIRT gambling intervention helped them to better understand their own gambling behaviors ($n=10$, 66.7%); patient participants also agreed that the resources associated with the SBIRT intervention were helpful ($n=12$, 78.4%). When asked how frequently their clinician should screen them for possible gambling, 60% ($n=9$) of participants stated that they should be screened every 3 months. However, 40% (n = 6) of participants agreed that participating in the SBIRT intervention did not change their opinions about gambling (See Fig. 4).

1 Month Post Intervention Outcomes

Of the 15 originally recruited participants who completed the baseline assessment, 13 individuals returned to complete the post intervention follow-up. Among the 13 participants who completed both baseline and follow up measures, the median amount of money spent on gambling over a period of 30 days was 0 dollars at one-month follow-up. The median number of days spent gambling over a period of 30 days was 0 days at one-month follow-up (See Table 2).

Twenty-three percent ($n=3$) of the participants reported 4 or greater DSM-5 criteria for gambling disorder. These were the same individuals who reported 4 or greater DSM-5 criteria for gambling disorder at baseline. Compared to those who scored 3 or less DSM-5 criteria, those who scored 4 or more DSM-5 criteria, were more likely to spend a greater sum of money ($0 vs $65) and gamble more days (0 days vs. 21 days) over a 30-day period. Compared to pre-intervention, those who met 4 or more DSM-5 criteria at 1 month post-intervention were more likely to spend less money on gambling (pre-intervention median $400 vs. post-intervention median $65) and gambled less days (pre-intervention median 26 days vs. post-intervention median 21 days) (See Table 3).

Clinician Debriefing

All 3 clinicians agreed that the screening and the intervention were easy to implement and most reported that the intervention was helpful. All clinicians agreed that they would like to continue using the screening and the intervention outside of the study. Potential frequency of use ranged from once weekly to every day among the clinicians. Clinicians identified possible long-term workflow issues would need to be attended to in order properly maximize clinic efficiency. For example, one clinician stated: "… I think that there would be quite a lot of patients that would need a follow-up. [We would] have to make sure that that is delegated well. Maybe if there was someone in the clinic that was designated to follow-up and reach out to them." Some clinicians suggested that problem gambling screening and intervention can be delegated to nurses and social workers as a way to increase efficiency.

Table 3 Median days gambled within the 30-day period for pre and post intervention

	Median days gambled within 30 day period pre-intervention ($N=15$)	Median days gambled within 30 day period post-intervention ($N=13$)
All participants	1	0
DSM-5 + gambling*	26	21
DSM-5 -gambling	0.5	0

*$n=3$ for both pre and post intervention

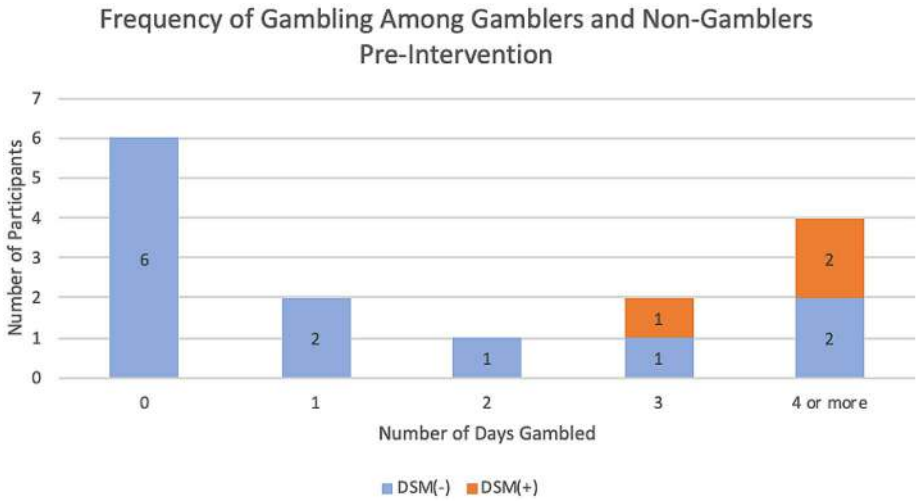

Fig. 5 Frequency of gambling among gamblers and non-gamblers during pre-intervention

Discussion

The results of this study provide evidence that the tailored SBIRT intervention is feasible to deliver and acceptable to people receiving care in a HIV Care setting. Both those who were at risk for a gambling disorder as well as those who were not at risk for a gambling disorder reported the intervention materials to be helpful and easy to understand. In particular, most participants agreed that learning more about problem gambling and having

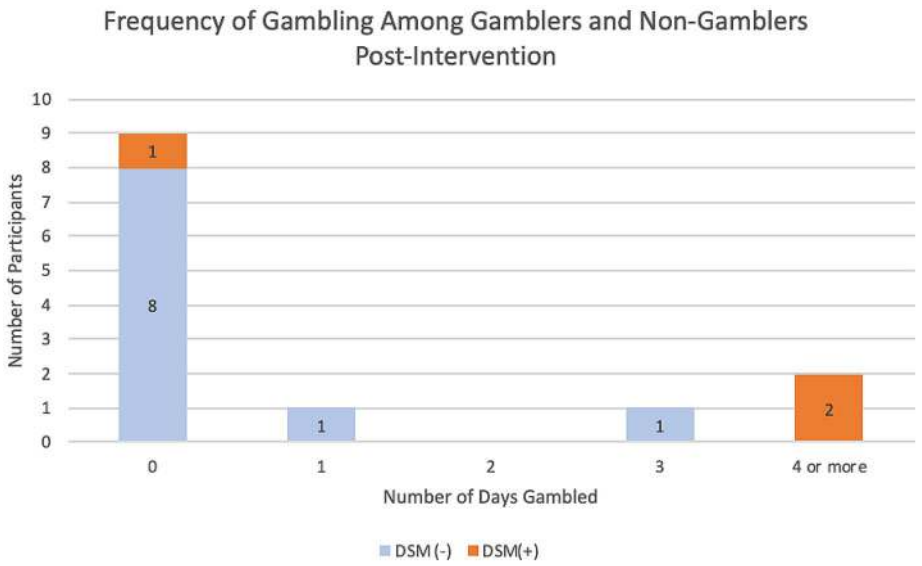

Fig. 6 Frequency of gambling among gamblers and non-gamblers during post-intervention

resources to use or share was beneficial. Additionally, clinicians who delivered the intervention reported that the intervention was time efficient and easy to administer.

The intervention also led to a reduction in gambling behaviors. Compared to baseline, those who participated in the intervention decreased both the median number of days gambled, as well as the median amount of money gambled at 1-month follow-up (See Figs. 5 and 6). The greatest amount of change occurred for those who were at highest risk for a gambling disorder (i.e., those who scored 4 or above on DSM-5 criteria).

We specifically chose to deliver the intervention in an HIV/primary care clinic as previous studies suggest that problem gambling is highly prevalent among people living with HIV (Langan et al., 2019). In fact, our study found that the prevalence of gambling disorder (even among a small sample) was 20% ($n=3$). This compares to a prevalence of problem gambling in the primary care setting (non-HIV setting) of between 3 and 6.2% (Goodyear-Smith et al., 2006; Pasternak IV, 1999). Reasons for the higher prevalence of gambling use disorders in the HIV setting may be related to the higher prevalence of known risk factors for gambling including alcohol and drug use disorders. Because of the higher prevalence rate of gambling among those living with HIV, we were able to evaluate the feasibility and acceptability of delivering all aspects of the SBIRT intervention (targeting low, medium and high-risk gamblers) in a small sample.

The study had several limitations. Being a pilot study recruitment occurred at one site. As such the results may not directly generalize to sites that are not in an urban area or affiliated with an academic medical center. The within-subject, non-randomized pre-post nature of the study design may be associated with several biases including selection bias, recall bias and social desirability bias. Although one cannot estimate the size or direction of these biases, caution should be used when interpreting the study results. Finally, the small sample size limited adjusting for possible confounders in the analysis.

This pilot study demonstrated the feasibility and acceptability of a tailored SBIRT problem gambling intervention directed toward a high-risk group receiving care in an HIV clinic. The study also found a reduction in gambling behaviors especially among those at highest risk for a gambling use disorder. Next steps include evaluating the SBIRT intervention in a fully powered randomized control trial to evaluate the efficacy of the intervention.

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Code availability STATA (version15.1).

Declarations

Conflict of interest The authors declare they have no conflict of interest.

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