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Associations between financial gambling motives, gambling frequency, and level of problem gambling: A meta-analytic review

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Abstract

Background and aims: Money is central to psychological definitions of gambling, but contemporary accounts are ambiguous regarding the role of financial motives in disordered gambling. The aims of the current research were to obtain meta-analytic weighted effect sizes for zero-order associations of financial motives against gambling frequency and level of problem gambling, as well as partial associations after controlling for other motives (e.g., coping).

Methods: A meta-analysis of the literature through February 2021 was undertaken. Studies were identified from multiple sources (e.g., database search, other researchers). PRISMA standards were followed when screening identified records and extracting relevant data. The data analytic plan was pre-registered. We included 44 cross-sectional studies that involved student, community, and clinical samples of people who gamble (sample sizes ranged from 22 to 5,666), using validated self-report measures of financial gambling motives alongside measures of either gambling frequency and/or problem gambling.

Results: Financial gambling motives were positively associated with gambling frequency, r = .29, [.21, .37], N= 22,738 and level of problem gambling, r = .35, [.31, .38], N = 38,204 with moderate effect sizes. Partial associations after controlling for overlapping variance with other gambling motives were also positive (gambling frequency: β = .14, [.05, .22], N = 13,844; level of problem gambling: β = .18, [.13, .22], N = 28,146), with small-to-moderate effect sizes. Effect sizes were heterogeneous and the extent of heterogeneity was high. Analyses of the zero-order association involving gambling frequency indicated that gambling motives measure (greater for Gambling Motives Questionnaire-Financial) and sample mean age (greater for younger samples) were moderators. No other moderators were statistically significant.

Conclusions: Financial gambling motives appear to be reliably and positively associated with both gambling frequency and level of problem gambling.

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Definitions of gambling—both legal and psychological—centre around money both in the wager and prize (1). To a layperson, the question "Why do people gamble?" might trigger an obvious answer "To win money". Indeed, in studies asking gamblers about their motives for gambling, winning money was typically the most endorsed item, among both regular gamblers and in people with gambling problems (2,3). However, empirical research on gambling either overlooks or underspecifies the role of financial motives in disordered gambling (4,5). The present research uses meta-analysis of primary literature to examine the relationship between gambling financial motives, and either gambling frequency or level of problem gambling.

Early interest in gambling motives (6) was predicated on established motives for alcohol use that distinguishes three factors: social (e.g., to spend time with friends), enhancement (e.g., for excitement), and coping (e.g., to escape negative affect) motives(e.g., 7,8). Disordered gambling and alcohol use disorders have been strongly associated with coping motives (6,9,10), consistent with theoretical perspectives that emphasize negative reinforcement as a key process in the transition to addictions (e.g., 11,12). In this behavioural formulation, forms of positive reinforcement (excitement and socializing, but also the possibility to win money) may explain why people *begin* gambling, but are less important in the transition to disordered gambling (13).

The three-factor formulation of gambling motives measured using the Gambling Motives Questionnaire (GMQ; 14) was subsequently extended to include financial motives (GMQ-F; 10). Other widely used scales for assessing gambling motives also include a financial component, including the Gambling Motives Scale (GMS; 15) grounded in self-

determination theory, the Gambling Outcomes Expectancies Scale (GOES; 16), and the Reasons for Gambling Questionnaire (RGQ; 17). Nevertheless, financial motives are often considered secondary compared to social, enhancement, and coping motives for gambling (16). Notably, the most influential contemporary biopsychosocial framework of disordered gambling—the Pathways Model (4)—is also silent about the roles of either money or financial attitudes.

Other research on gambling informed by sociology and anthropology recognizes the ingrained cultural significance of money in people who gamble. The traditional role of money in human societies as a medium for trading goods (i.e., money as a 'tool') becomes subverted in gambling, because both the act of gambling and the receipt of gambling wins are stimulating (i.e., money as a 'drug') (18,19). In Binde's motivational model of gambling, the sociocultural symbolism of winning money may be a super-ordinate motive in gambling, from which other motives originate (20,21). Walker et al. (22) noted that the prospect of winning money may be a prerequisite for gambling's other effects. Financial motives may therefore amplify these other sources of reinforcement: winning provides more enhancement or escape for a gambler with high financial motives (e.g., 10,23). Among people with gambling problems, the acquisition and uses of money become further complicated by mounting debts; for example, sporadic access to funds, or balancing gambling spending with other household needs (5). From these perspectives, individual differences in financial motives may continue to play a critical but complex role among people with disordered gambling.

The ambiguity around the fundamental role of financial motives persists in recent empirical work. First, financial motives are reliably associated with measures of gambling involvement (10,16). For disordered gambling, some studies have reported positive correlations with financial motives, which remained after statistically controlling for multiple covariates including the shared variance with other gambling motives (e.g., 24–26). However, other studies reported that a positive bivariate association was attenuated when the shared variance with other motives was partialed out (e.g., 27–29), and some other studies have failed to detect even basic differences in financial motives between groups with and without gambling problems (30,31). In one study (32), the proportion of people who endorsed a single item 'to win money' was *lower* among those with gambling problems compared to those who gamble without problems. These inconsistencies may reflect psychometric issues with the measurement of financial motives, such as the potential for ceiling effects, or the possibility that financial motives may change over the transition from recreational to disordered gambling (e.g., because of rising debts). Accordingly, it is informative to examine financial motives in relation to both basic gambling frequency and level of problem gambling.

Herein, we used meta-analysis to examine the following relationships:

1) The weighted mean zero-order association between financial motives and gambling frequency. We also explored sources of heterogeneity across studies.

Moderators were sample characteristics and the questionnaire used to measure financial motives.

2) The weighted mean partial association between financial motives and gambling frequency after statistically controlling for shared variance with other motives.

3) The weighted mean zero-order association between financial motives and level of problem gambling. We also explored sources of heterogeneity using moderator analyses.

4) The weighted mean partial association between financial motives and level of problem gambling after statistically controlling for shared variance with other motives.

A further goal of the meta-analytic review was to assess publication bias for the weighted mean zero-order associations. All analyses were pre-registered: https://osf.io/mrndq.

Method

Inclusion and exclusion criteria

Studies were included if they were (a) empirical, (b) measured financial motives for gambling, (c) measured level of problem gambling, gambling frequency, or both, and (d) written in English or French. Studies were excluded if they were a) experimental or qualitative, (b) measured gambling motives with a single item or an open-ended question, (c) published before 1980 (the year pathological gambling was recognized as a diagnosis in the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition), or (d) the data were already included in another study in our review. Experimental studies were excluded (i.e., exclusion a) because the effect size for experimental manipulation but qualified and carries a different substantive meaning than results from observational studies. For studies reporting on the same dataset (exclusion d), these were identified by the second author closely

comparing the Method sections of papers from the same research teams for whether the data were reported in more than one paper. We considered two or more papers as relying on the same data if the date, location, and method of recruitment were identical and the basic demographics and sample size were similar.

Selection of studies

Studies were located via three sources. First, a comprehensive database search was originally conducted in October 2019 to identify relevant records using PsycINFO, PubMed and ProQuest Dissertations and Theses databases (to capture relevant grey academic literature). We identified search terms for financial motives and gambling to search the title and abstract of records in each database. For example, in PsycINFO, the boolean phrase for financial motives was (ab(Motiv*) OR ab(Reason*) OR ab(Expectan*) OR ti(Motiv*) OR ti(Reason*) OR ti(Expectan*)) AND (ab(finan*) OR ab(mone*) OR ti(finan*) OR ti(mone*)). The PsycINFO boolean phrase for gambling was (ab(gambling) OR ab(Pathological Gambl*) OR ab(Disordered Gambl*) OR ti(gambling) OR ti(Pathological Gambl*) OR ti(Disordered Gambl*)). Critically, both phrases were combined using the AND operator. The boolean phrases for the remaining databases are available on OSF (https://osf.io/atc2v/). The comprehensive database search identified 373 records.

Second, records were located based on the expert knowledge of the research team (e.g., recently accepted or in press records as well as unpublished data) from which 44 potential records were identified. Of note, the database search captured 31 of these 44 records (70.45%), supporting the accuracy and rigour of the database search. Third, three records were located by requesting unpublished and in press studies from experts in the field via the Gambling Issues International listserv and Twitter. A total of 420 records were located from the three sources. After removing duplicates, 388 unique records remained. For the database search results, two independent coders coded the abstracts according to the inclusion and

exclusion criteria. The agreement rate between the two coders was 95.9% and their inter-rater reliability was moderate-to-high, Kappa = .83, $p < .01$. When the coders' ratings diverged, they were discussed until consensus was achieved. This process resulted in a set of 104 records that were eligible for full-text screening.

The database search was updated to locate relevant research between October 2019 and February 2021, and 44 new records were found after removing duplicates. Again, two independent coders (the second and third authors) screened the records based on the title and abstract (agreement rate 97.7%, Kappa = .93, $p < .01$), and this screening process identified 10 records for full-text review.

As described in the PRISMA diagram (see Figure 1), a total of 114 records were identified for full-text screening. The second author screened the full text using the inclusion/exclusion criteria. When it was unclear whether a given record should be included or excluded, a second coder examined the full text. Of the 114 records, 70 were ineligible. For the studies that met the eligibility criteria, but did not present the required data to obtain the effect sizes for the meta-analyses, our team contacted the corresponding authors (contact information could not be obtained for three records) to request the additional data (i.e., means and *SD*s of study variables and their intercorrelations). In total, we obtained relevant data from 44 records (see Table S1).

For financial motives and gambling frequency, we identified 19 effect sizes for the zero-order association, and 11 effect sizes for the partial association controlling for shared variance with other gambling motives (i.e., social, coping, and enhancement). Of note, for the zero-order and partial associations, 13 and 8 effect sizes respectively, were derived from our author requests for additional information. For financial motives and level of problem gambling, we identified 47 effect sizes for the zero-order association, and 36 effect sizes for

the partial association, and 20 and 15 of these effect sizes, respectively, were derived from our author requests for additional information.

Effect size information

We used the Pearson correlation coefficient (*r*) as the effect size to index the zero-order association between financial motives and gambling frequency. The *r*s were extracted from each study. We used the standardized regression coefficient (β) as the effect size to index the relation between financial motives and gambling frequency after statistically controlling for other gambling motives (i.e., social, coping, and enhancement). The βs were calculated from more detailed information (i.e., descriptive statistics and correlations) directly obtained from the authors of each study—this was necessary because many studies did not report the information needed to calculate the partial relations. The same effect sizes were used to index the zero-order association and partial association between financial motives and level of problem gambling.

Meta-analytic procedure

In line with recommendations (see 33), *r* was transformed to Fisher's *r* (Z_r) in the meta-analyses and results were back transformed to Pearson *r* for interpretation. In the analyses, Z_r effect sizes were pooled and weighted by their inverse-variance ($1/SE^2$). The *SE* of each Z_r was calculated using the formula provided by:

$$SE_{Zr} = \sqrt{(N-3)}$$

where *N* is the sample size.

We examined the variability between the effect sizes using the test of heterogeneity (*Q*-statistic). When there was evidence of variability among the effect sizes, the I^2 statistic was used to quantify the extent of variability. We examined publication bias by testing whether there were significant differences between published and unpublished effect sizes

using the meta-analysis analogue to ANOVA, along with Funnel Plots and Egger's Test. The funnel plots are available on OSF: https://osf.io/atc2v/

Moderator analyses were conducted using the meta-analysis analogue to regression (i.e., meta-regression) to examine predictors of between-study variability among the effect sizes. In the meta-regression, moderators were examined simultaneously to control for their overlapping variance. Sample mean age, and percentage of women in each sample, were included as continuous moderators. Country of origin was re-coded as geographical region and included as a categorical moderator using dummy codes in which the reference group was North America (k = 23). The remaining categories were Australasia (k = 10), Europe (k = 9), Asia (k = 4), and South America (k = 1). Publication status was included as a categorical moderator with two levels (published vs. unpublished). The measure of financial motives was included as a categorical moderator using dummy codes with the GMQ-F (k = 22) as the reference category, contrasted with author-developed measures (k = 7), the Gambling Outcomes Expectancies Scale (k = 5), and an 'Other' category (k=13) comprising the Reasons for Gambling Questionnaire (k = 4), Lee et al.'s (2007) (21) gambling motivation scale (k = 3), the Gambling Motives Attitudes and Behaviors scale (k = 2), Chantal et al.'s (12) Gambling Motivation Scale (k = 2), the Gambling Expectancy Questionnaire (k = 1), and the Motivational Scale for Fantasy Football Participation (k = 1). We sought to examine sample type (e.g., clinical vs. community) as a moderator, but most studies involved community samples; only one involved a clinical sample of disordered gamblers and one other involved a vulnerable population (see Table S1), which precluded examining sample type as a moderator. Moderators that were statistically significant in the meta-regression were

probed using simple effects analyses. The simple effects analyses were not pre-registered and so should be considered exploratory.

For meta-analyses that pooled βs, they were also each weighted by their inverse-variance. The *SE* of each β was calculated using the formula provided by Cohen, Cohen, West, & Aiken (34):

$$SE_{\beta i} = \sqrt{\frac{1 - R_y^2}{n - k - 1}} \sqrt{\frac{1}{1 - R_i^2}}$$

where R_y^2 is the variance explained in the dependent variable by the independent variables in the regression model, R_i^2 is the variance explained in the independent variable of interest by the remaining independent variables in the regression model, *n* is the sample size, and *k* is the number of independent variables in the regression model.

We interpreted the magnitude of each effect (*r* and β) size according to Cohen's (35) conventions for correlation coefficients, where .10 is small, .30 is moderate, and .50 is large. To allow us to generalize our results beyond the current sample, a random-effects model was used in the meta-analyses regardless of the degree of heterogeneity. All meta-analyses were conducted using JASP (36).

Quality Assessment

The Joanna Briggs Institute Checklist for Analytical Cross Sectional Studies (37) was used to assess risk of bias in the individual studies. The 44 studies were scored by two independent coders and results are reported in the supplementary and in Table S2.

Results

Descriptives and quality assessment

Table S1 shows the demographic information (age, gender composition, and country) associated with each effect size. Mean age and gender (% female) in each sample were recorded as continuous variables. Country was recorded as a categorical variable, with 48.9%

of the effect sizes drawn from North America (k = 23). Table S1 also displays publication status (83% were published; k = 39) and the measures used to assess financial motives, gambling frequency, and level of problem gambling. The most common measures were the GMQ-F (k = 22) and the Problem Gambling Severity Index (k = 32). In the smaller group of studies assessing gambling frequency (k = 19), most measured gambling frequency using an author-developed scale.

Financial motives and gambling frequency

Mean weighted zero-order association. Financial motives were positively associated with gambling frequency (see Table 1). The mean effect size was *moderate* (see Figure 2 for forest plot).

Publication bias. Because all effect sizes were drawn from published research, we could not test the difference between published and unpublished effect sizes. Nevertheless, Egger's test of funnel plot asymmetry was not statistically significant, z = 1.49 and p = .14. Thus, we find no evidence of publication bias.

Moderator analysis. The effect sizes were heterogeneous and the extent of heterogeneity was high (see Table 1). Results of the moderator analysis are reported in Table 2. Of note, the omnibus test of the meta-regression model was statistically significant, $Q(7)$ = 28.16, $p = 2.06^{e-4}$. There was a statistically significant difference between studies that used the GMQ-F versus studies that used an author-developed measure, or the 'other measures' category of financial motives (see Table 2). Simple effects analysis indicated that the pooled effect size among studies that used the GMQ-F was moderate-to-large in size, whereas the pooled effect size for the 'other measures' category was small-to-moderate (see Table 3). The

pooled effect size among studies that used an author-developed measure of financial motives was small and not statistically significant (see Table 3).

Sample mean age was also a statistically significant moderator (see Table 2). Simple effects analysis indicated that the pooled effect size among studies that involved younger samples (i.e., 1 *SD* below the weighted mean) was moderate-to-large in size whereas the pooled effect size for older samples (i.e., 1 *SD* above the weighted mean) was small and not statistically significant (see Table 3). None of the remaining moderators were statistically significant.

Mean weighted partial association. For the partial association, financial were positively associated with gambling frequency (see Table 1). The mean effect size was *small-to-moderate* (see Figure 3 for forest plot). The effect sizes were heterogeneous and the extent of heterogeneity was high (see Table 1).

Financial motives and level of problem gambling

Mean weighted zero-order association. Financial motives were positively associated with level of problem gambling (see Table 1). The mean effect size was *moderate* (see Figure 4 for forest plot).

Publication bias. There was no difference between published (k = 39) and unpublished (k = 8) effect sizes, $Q(1) = .07$, $p = .80$, and Egger's test of funnel plot asymmetry was not statistically significant, $z = .84$ and $p = .74$. Thus, there was no evidence of publication bias.

Moderator analysis. The effect sizes were heterogeneous and the extent of heterogeneity was high (see Table 1). Results of the moderator analysis are reported in Table 2. The omnibus test of the meta-regression model was not statistically significant, $Q(10) = 9.52$, $p = .48$, and none of the tested moderators were statistically significant. Thus, our

included moderators did not explain variation between the effect sizes for level of problem gambling.

Mean weighted partial association. For the partial association after controlling for shared variance with other motives, financial motives were positively associated with disordered gambling severity (see Table 1). The mean effect size was *small-to-moderate* (see Figure 5 for forest plot). The effect sizes were heterogeneous and the extent of heterogeneity was high (see Table 1).

Discussion

Our systematic search identified 19 effect sizes for the association between financial motives and gambling frequency. Meta-analysis indicated a reliable association of moderate effect size. We ruled out the possibility that the zero-order association was due to shared variance between financial and other motives (social, enhancement, and coping). We identified 47 effect sizes for the association between financial motives and level of problem gambling. Meta-analysis indicated a reliable association of moderate effect size, which again could not be explained by covariation with other motives. We observed no evidence of publication bias but a high level of heterogeneity in the primary research, which corroborated our impression of a mixed literature. Overall, our results highlight a unique contribution of financial motives for understanding both gambling involvement and level of problem gambling.

For the relationship with level of problem gambling, none of the tested moderators (see Table 2) accounted for variance between the effect sizes. The only moderation effects that were observed were for gambling frequency, where the choice of financial motives questionnaire and sample mean age accounted for significant variance. Specifically, the pooled effect size for studies that used the GMQ-F was moderate-to-large, whereas the pooled effect size for studies that used other established measures of gambling motives was

small-to-moderate. Also, the pooled effect size for studies that used an author-developed motives measure was small and not statistically significant. The GOES (16), as another commonly-used scale, did not differ from the GMQ-F. Together, these findings indicate that larger effect sizes were observed for the GMQ-F—the measure that has received the most psychometric attention (e.g., 9,10,13,38). In the original paper validating the GMQ-F (10), the four financial items accounted for unique variation in predicting gambling frequency, but disordered gambling data were not available. As for sample mean age, the pooled effect size was moderate-to-large among studies that involved younger samples (i.e., age 26 mean) and was not statistically significant in the older samples (i.e., age 53 mean). The observation that financial motives are correlated with gambling frequency in younger samples likely reflects the sensitivity of financial motives to gambling *initiation*; few adults initiate gambling later in life (39).

Behavioural accounts of disordered gambling assert that financial motives (as a form of positive reinforcement) may predict gambling frequency but not the transition to disordered gambling (13). Our meta-analytic results show that people who report higher (relative to lower) financial motives report higher levels of both gambling involvement and problem gambling. In past work, financial motives have been shown to differentiate between casino patrons with and without gambling problems more than other motives (40). Moreover, in people seeking treatment for disordered gambling, optimism about winning money, and the need to make money, were among the top reasons listed for gambling relapses (41). The link between financial motives and disordered gambling may be bi-directional in nature: people who gamble for financial reasons may be more likely to develop problems, and those with gambling problems are also more likely to gamble for financial reasons (see also 5). Accordingly, an implication of our meta-analytic results is that they reinforce recent attention

to affordability, emerging payment technologies, and financial records, as part of a screening assessment procedure for reducing gambling harm (42–44).

Although the associations with financial motives were robust after controlling for shared variance with other motives, we recognise that gambling motives are often intercorrelated. It remains unclear whether gambling motives operate in parallel, wherein financial and other motives contribute additively to gambling outcomes (e.g., 10,13) or operate through a hierarchical structure in which financial motives underpin other motives (e.g., 20,45), or via a multiplicative effect in which financial motives qualify the effects of other motives on gambling outcomes (e.g., 23). Examining financial motives in isolation from other motives likely provides an incomplete analysis of people's reasons for gambling, and future research should test how financial motives combine with other gambling motives to promote gambling involvement and pathology.

Another avenue for future research is to examine individual differences in attitudes towards money and objective financial success as antecedents of financial motives that may help explain some of the substantial heterogeneity among the effect sizes (see Table 1). For instance, there is some evidence that people who view money as an important indicator of success, prestige, and power are more likely to gamble and to have gambling problems (4,46). Likewise, the extent to which people hold a financially focused self-concept (i.e., placing overriding importance on financial success for self-definition and self-worth; ,47) and feel financially deprived relative to others (personal relative deprivation; ,48) have both been linked with gambling for financial gain and having gambling problems (49–52). We note that these attitudes towards money and financial success have received limited attention among both the identified studies in our review, and gambling research more broadly, and so we could not directly test whether they contribute to the observed heterogeneity between the effect sizes.

Our review identified some further limitations with the existing literature on financial gambling motives. First, most studies involved community samples, and there were few data in either treatment-seeking samples or vulnerable populations including ethnic minorities and youths (e.g., 53), so that we could not test for this moderator. This is a critical gap in the literature given evidence that members of ethnic and racial minorities are more likely to gamble for financial gain (e.g., 54). Second, extant research is based almost exclusively on cross-sectional research designs, which limits causal inferences. A rare longitudinal study showed that financial motives do not prospectively predict gambling involvement and level of problem gambling among community gamblers when shared variance with other motives was partialed out (55). Third, most studies that measured gambling frequency did not use validated instruments. Caution is warranted regarding our findings for gambling frequency given the smaller subset of studies reporting this variable. Lastly, a potential limitation is that our database search for the meta-analysis involved searching titles and abstracts rather than full text, although records showed a high degree of corroboration with expert sources.

In sum, our meta-analytic review showed robust concurrent positive associations of moderate effect size between financial gambling motives, and both gambling involvement and level of problem gambling.

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Table 1. Meta-analytic results for the zero-order and partial associations between financial gambling motives, gambling frequency, and level of problem gambling

Analysis	Effect size	95% CI	*Q*(*df*)	*p*	I^2	*k*	*N*
Financial motives and gambling frequency							
Mean weighted zero-order association	.29	[.21, .37]	46.70(1)	8.27^{e-12}	—	19	22,738
Heterogeneity	—	—	860.61(18)	3.92^{e-171}	97.58%	—	—
Mean weighted partial association	.14	[.05, .22]	175.42(1)	1.37^{e-61}	—	11	13,844
Heterogeneity	—	—	175.42(10)	2.09^{e-12}	95.04%	—	—
Financial motives and level of problem gambling							
Mean weighted zero-order association	.35	[.31, 38]	273.22(1)	2.26^{e-61}	—	47	38,204
Heterogeneity	—	—	1105.73(46)	1.58^{e-201}	93.77%	—	—
Mean weighted partial association	.18	[.13, .22]	67.09(1)	2.59^{e-16}	—	36	28,146
Heterogeneity	—	—	528.61(35)	1.88^{e-89}	92.05%	—	—

Note. CI = Confidence Interval. The Pearson correlation coefficient (*r*) was the effect size used for the mean weighted zero-order association and the standardized regression coefficient (β) was the effect used for the mean weighted partial association.

Table 2. Results of moderator meta-regression analyses.

	Gambling Frequency	Level of Problem Gambling
Moderator variable	*B*(*SE*)	*B*(*SE*)
Mean age of the sample	-.01(.0003)**	-.0004(.0002)
Gender (% female)	.0001(0001)	.00006(.001)
Publication status	—	-.07(.08)
Gambling motives measure		
GMQ-F vs. author-developed	-.31(.11)**	.05(.07)
GMQ-F vs. GOES	-.16(.11)	.15(.09)
GMQ-F vs. Other	-.25(.11)*	.06(.07)
Geographical region		
North America vs. Australasia	-.0002(.09)	-.11(.07)
North America vs. Europe	-.0002(.09)	-.07(.07)
North America vs. Asia	—	.03(.10)
North America vs. Argentina	—	-.0007(.16)

Note. GMQ-F = Gambling Motives Questionnaire - Financial; GOES = Gambling Outcome Expectancies Scale. Regression coefficients are unstandardized. *$p < .05$; **$p < .01$.

Table 3. Simple effects of the zero-order association between financial gambling motives and gambling frequency for sample mean age and gambling motives measure

Analysis	Effect size	95% CI	*z*	*p*
Mean age of the sample				
+1 *SD* (53.27 years)	.07	[-.06, .21]	1.05	.29
-1 *SD* (25.99 years)	.38	[.29, .46]	7.68	1.54^{e-14}
Financial gambling motives questionnaire				
GMQ-F (*k* = 4)	.42	[.27, .56]	5.02	5.06^{e-7}
Other established (*k* = 5)	.22	[.07, .36]	2.79	5.35^{e-3}
Author developed (*k* = 5)	.15	[-.02, .30]	1.76	.08

Note. GMQ-F = Gambling Motives Questionnaire – Financial. Other established gambling motives measures include the Reasons for Gambling Questionnaire, Gambling Motivations Scale, and the Motivational Scale for Fantasy Football Participation.

Figure 1. PRISMA Chart

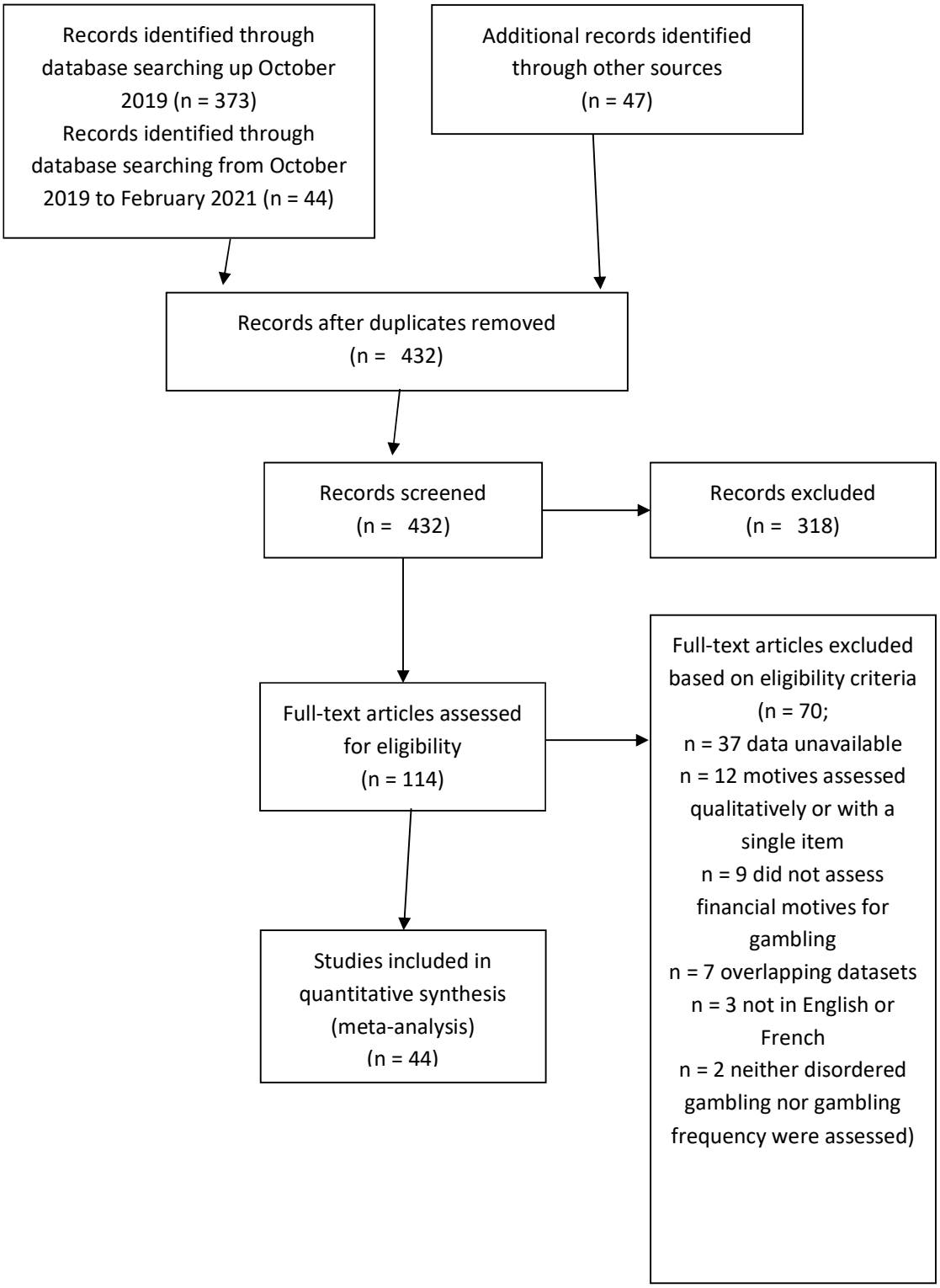

Figure 2. Forest plot of Fisher Z_r effect sizes indexing the zero-order association between financial motivation for gambling and gambling frequency.

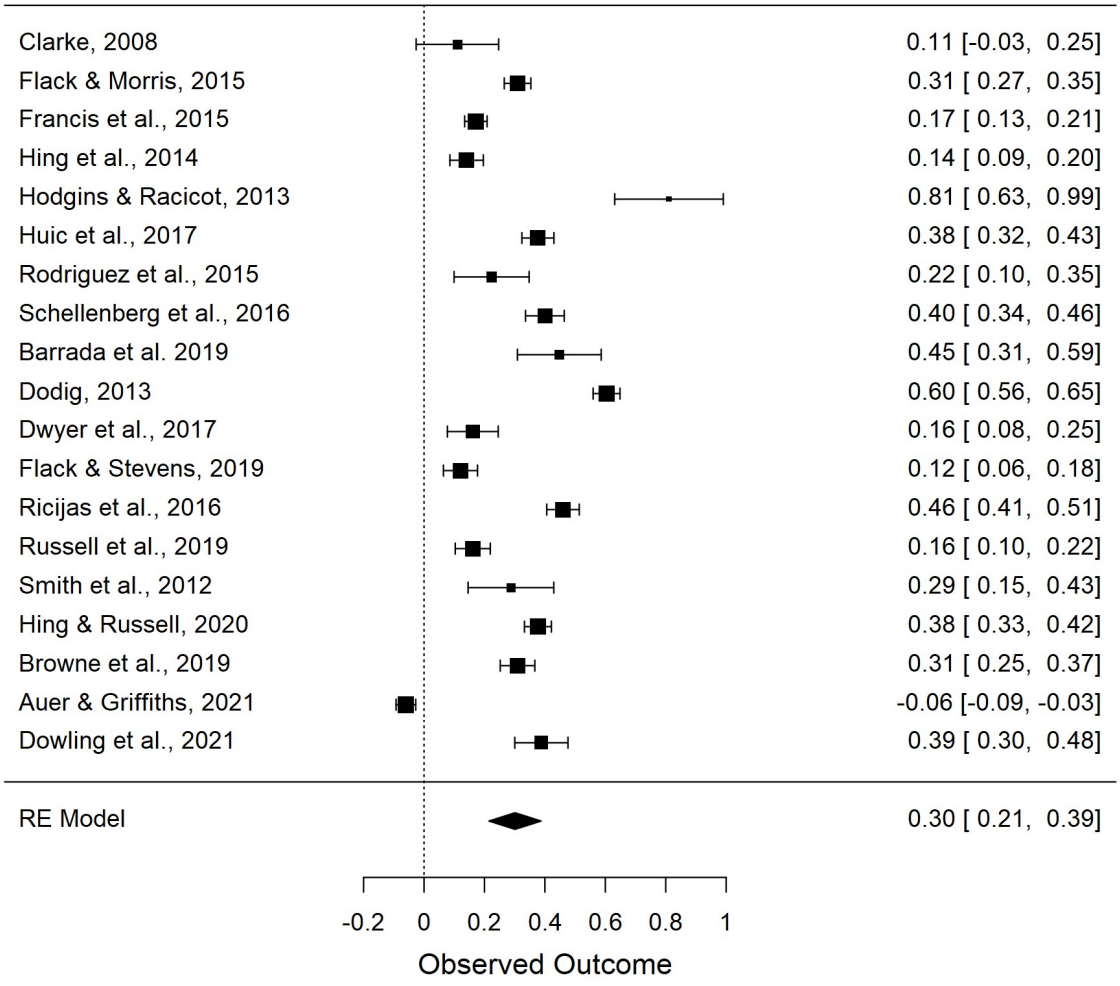

Figure 3. Forest plot of the standardized regression coefficients indexing the unique association between financial motivation for gambling and gambling frequency controlling for social, coping, and enhancement gambling motives.

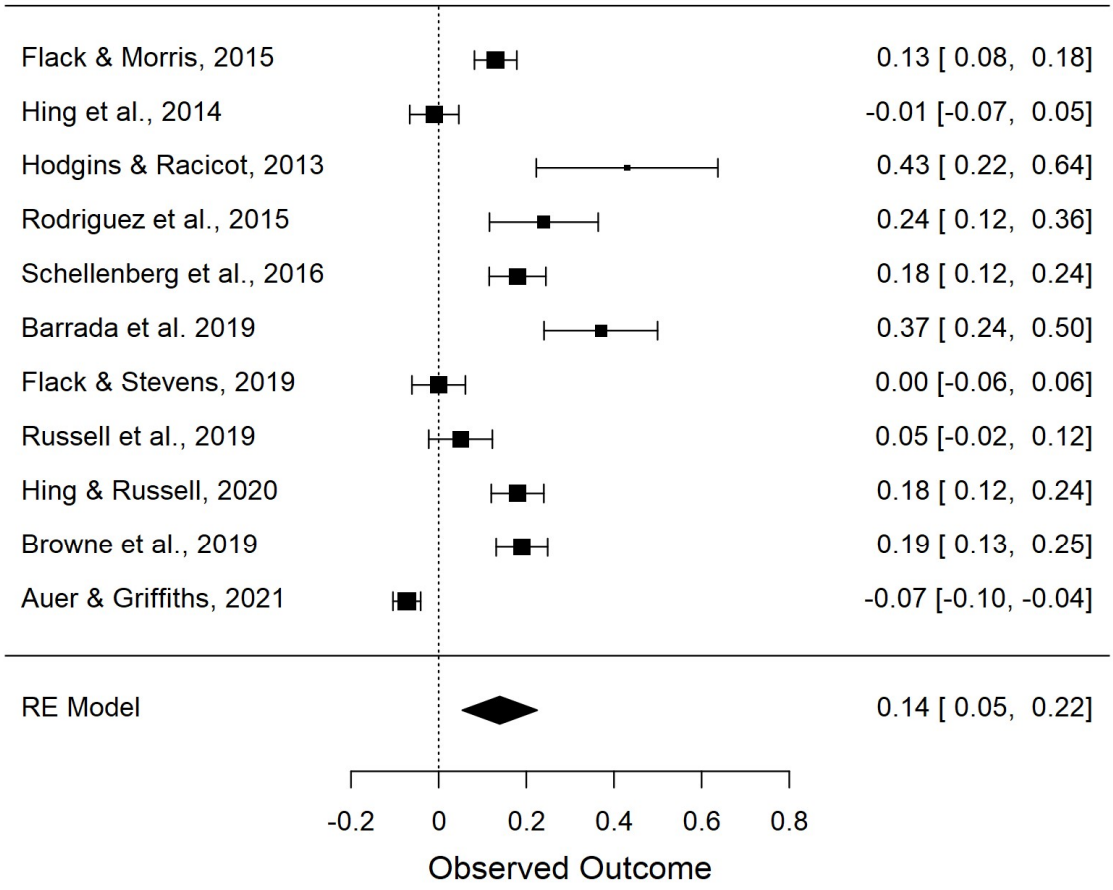

Figure 4. Forest plot of Fisher Z_r effect sizes indexing the zero-order association between financial motivation for gambling and level of problem gambling.

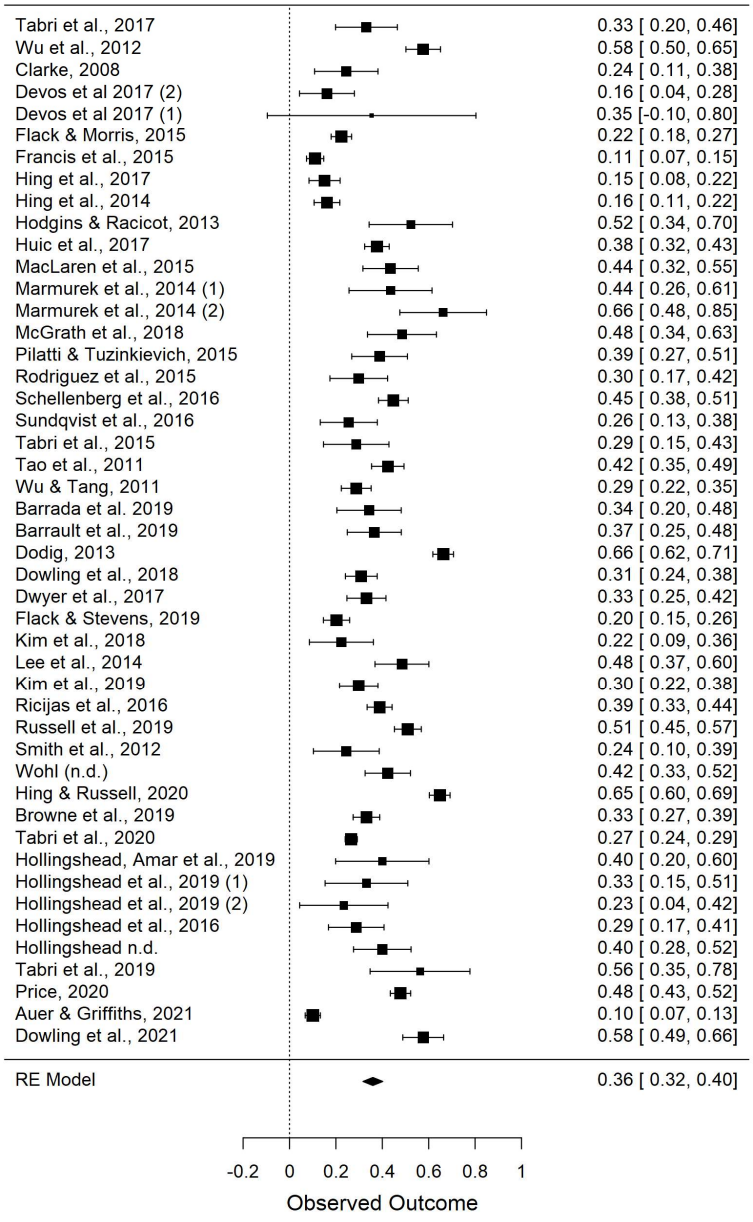

Figure 5. Forest plot of the standardized regression coefficients indexing the unique association between financial motivation for gambling and level of problem gambling controlling for social, coping, and enhancement gambling motives.