The Sound of Cooperation:

Musical Influences on Mood and Behavior

ABSTRACT

In contrast with voluminous evidence that consumer behavior can be musically influenced, organizational studies about the relevance of music in the workplace have been sparse. In order to draw attention to the influence of music as an environmental factor with important relevance for organizational performance, we conducted an experiment to examine the ways in which music affects cooperation among exchange partners. Most generally, we find that music can significantly and persistently increase mood while partly contributing to greater cooperation within groups. In light of past studies that have elicited cooperation for relatively brief tasks, the decay that we find for the effect of music upon cooperative behavior indicates that previous research needs to be reconsidered. Given the relatively low costs that are entailed by managerial changes to workplace soundscapes, our findings demonstrate concrete organizational benefits that can be gained through investments in the careful use of music.

Keywords: Music; Cooperation; Experimental

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Musical resources are drawn upon for many uses. In retail establishments, for example, store managers and advertisers are careful to play songs that will subtly encourage behaviors and attitudes that are more likely to result in greater sales (e.g., Munichor & Rafaeli, 2007; North, Hargreaves & McKendrick, 1999; Wansink & van Ittersum, 2012; Yalch, 1991). In sports, athletes in team and individual contests tend to demonstrate greater performance while reporting less exertion when competing with their favorite music (e.g., Karageorghis & Priest, 2012). And, in romantic relationships, the phrase "mood music" reflects a tradition of suitors using music to woo the subjects of their affection (e.g., Miller, 2000).

The myriad uses of music reflect two common facts. First, music is often employed with the goal of eliciting cooperation or bonding (e.g., among community members). Second, music is pervasive. Rentfrow and Gosling (2003), for example, report that people commonly listen to music when they are driving, reading, exercising, spending time with friends, and when they are alone. At the same time that music is mundane – and found, increasingly, everywhere, with the advent of new technologies – the centrality of music for sacred or religious rituals is also striking. In fact, music appears to be sufficiently "taken-for-granted" (Suddaby et al., 2010) in our lives that it has not been closely studied by organizational researchers.

Workplace soundscapes have drawn increased popular attention as firms move to "open floor" offices that lack the sound protections of walls and doors (Shellenbarger, 2012; Tierney, 2012); however, recent academic focus among organizational researchers has been sparse. For example, a search of the subject indices for ten popular Organizational Behavior textbooks yields no entries for "music," "musical," or "song" (Champoux, 2011; Colquitt, LePine, & Wesson,

2009; George & Jones, 2008; Griffin & Moorhead, 2007; Hitt, Miller, & Colella, 2011; Johns & Saks, 2001; Kinicki & Kreitner, 2008; Luthans, 2008; McShane & Von Glinow, 2008; Robbins & Judge, 2011). Similarly, a keyword search for "music" and "musical" generates no results for the *Academy of Management Journal* while articles in the *Academy of Management Review* and *Administrative Science Quarterly* focus on music as an industry or activity (Albert & Bell, 2002; Bougon, Weick, & Binkhorst, 1977; Faulkner & Runde, 2009; Greve, 1996; Hirsch, 1975; Lingo & O'Mahony, 2010; Miner, Bassoff, & Moorman, 2001; Moorman & Miner, 1998; Peterson & Berger, 1971) instead of considering music as a potential influence on contemporary workplaces. Curiously, the *Journal of Applied Psychology* and *Personnel Psychology* have published papers about the direct influence of music for workers in factories (Humes, 1941; Kerr, 1946; Kirkpatrick, 1943; Newman, Hunt, & Rhodes, 1966) and offices (Gatewood, 1921; Uhrbrock, 1961); however, most of that work predates that 1970s. As notable exceptions to this pattern, two recent papers in *Organizational Behavior and Human Decision Processes* have used music such as the theme song from the movie *Psycho* or an instrumental album by Kenny G to induce emotions to, respectively, examine individual performance in negotiations (Brooks & Schweitzer, 2011) and trading exercises (Au, Chan, Wang, & Vertinsky, 2003).

In this article, we present a conceptual framework for why music warrants closer investigation by organizational researchers and we report the results of a lab experiment that tests for the influence of music upon mood and cooperative behavior. Given that music – or music-related policies – is a workplace trait that can be modified with relative ease and low cost, our focus and findings carry significant value for researchers as well as managers who are interested to understand and increase cooperative behavior.

The Sound of Cooperation

Among the quintessential traits of being human, it is indisputable that the evolution of language was a critical step in the evolution of *Homo Sapiens*. For example, cooperation among non-human primates (e.g., chimpanzees) who lack the language skills that we have is significantly limited to relatively small numbers of associates. As Dunbar (1998, 2010) argues with cross-species evidence from brain size, social networks, and behavioral patterns, the size of non-human primate communities tends to be limited to the number of others with whom one can have a physical grooming relationship whereas human communication is potentially unlimited in scope since it is untethered from requiring physical connections between communicators.

Understanding the foundational role of language for cooperation is important for understanding the basic role of music because the two domains are very closely related. In fact, evidence of evolutionary connections involving music, language, and emotion leads some to the conclusion that music is a kind of language (Thompson, Marin, & Stewart, 2012). Independent of the degree to which human language and music capacities are (1) products of natural selection – where members of groups with better forms of language gradually replaced members of groups with inferior forms of language (Mithen, 2007) – or (2) products of sexual selection – where individuals with better forms of language had the highest reproductive fitness (Miller, 2000), the potential functionality of music for a wide range of social relationships is clear and comparable to other kinds of language.

For life within contemporary workplaces, the role of music has been exceptionally muted in the organizational research literature. In a recent qualitative analysis, Pritchard, Korczynski, & Elmes (2007) catalog and highlight ways in which company songs have been used in factory-

type settings to help create a sense of community among co-workers as well as loyalty to the firm. In more focused studies, El-Sawad and Korczynski (2007) revive and analyze the content of a "songbook" that International Business Machines (IBM) created and promoted in its early days – in some ways comparable to the hymnal books that can be found in churches to help people sing along with each other. More recently, Korczynski (2011) highlights and interprets the content of music that workers in a specific factory "used" to help time pass while conducting "routinized" work. Notably, while these papers do address the role of music as an environmental influence, none of them are experimental with a focus on measuring potential differences in outcome.

In a specific type of workplace setting involving professional workers – the operating room – there have been a number of empirical studies that explore the immediately consequential question of whether surgical teams operate better if music is playing during the course of a given procedure. Given that surgeons often do listen to music, it should be reassuring to anyone related to a patient that music does appear to effect significantly positive outcomes for surgeons whose preference is to listen while operating on someone (Allen & Blascovich, 1994). Less reassuring, however, is a study of other surgical team members (e.g., anesthesiologists) who tend to indicate concern that music might impair cooperation among team members (Hawksworth, Asbury, & Millar, 1997).

Conceptual Framework

Significant psychological research has been conducted to explore the role of music in relation to individual-level thoughts, feelings, and memory (e.g., Krumhansl, 2002; Weiss,

Trehub, & Schellenberg, 2012); however, comparable attention has not been paid to questions of how music can affect groups. Notably, Wiltermuth and Heath (2009) find that strangers who sing together in experimental settings are more likely to cooperate with each other and contribute to public goods across a limited number of rounds. While their findings illustrate one of the powers of music to bond people with each other, we are interested in the more naturalistic relevance of music – as listeners – for workplace settings.

Outside of organizational studies, the relevance of music for individual moods has been closely studied for clinical and marketing purposes. Clinically, the enterprise of "music therapy" is designed to utilize various aspects of music to help people manage a wide range of psychological challenges (e.g., Gold, Solli, Kruger, & Lie, 2009). Similarly, marketing practitioners – for non-musical products – have a tradition of respect for recognizing the power of music to affect mood and behavior. The common use of "jingles" to help people remember store names, slogans, or phone numbers is a good example (Yalch, 1991).

At the same time that we are interested to address the gap concerning how music might influence behavior among members of contemporary work teams, we are equally interested in the specific ways in which music might contribute to prosocial or cooperative behavior within groups. As a main hypothesis, we expect that music that people consider to be happy will increase individual commitments to organizational performance. We are specifically interested in cooperation as it relates to organizational citizenship behavior and other forms of mutually beneficial outcomes in which individual and group interests are favorably aligned (e.g., Smith, Carroll, & Ashford, 1995; Goldstein, Griskevicius, & Cialdini, 2011).

In addition to predicting that "happy" music will increase cooperation among exchange partners, we are interested to understand the pathway that underpins our prediction as well as the

strength of such relationships (e.g., between music and behavior) over time. With respect to pathway, we expect that mood is an important intermediary between music and behavior. Building partly on Andreoni's (1990) concept of "warm-glow giving" in which people engage in altruistic acts as a function of the personal enjoyment that they gain from such actions, we expect that happy music helps to create "warm glows" that contribute to more cooperative behavior.

With respect to the persistence of musical influences on behavior over time, we are interested to determine the degree to which our predicted relationship is prone to decay. In a series of experiments that approach our interests most closely, Greitemeyer (2009a, 2009b, 2011) has studied whether the content of music – positive or negative – appears to influence intentions and behavior and he highlights the role that empathy appears to play as a mediator between music and behavior. Our research builds upon Greitemeyer's experiments and highlights the role of mood in addition to testing the degree to which any influence of music might moderate or disappear over time.

Methods

Participants and Procedures

We openly recruited participants on the campus of a private university in the Northeastern United States to join one of 8 experimental sessions that were conducted in two sets of four consecutive sessions with students recruited from an undergraduate business course. We utilized an experimental economics laboratory with a capacity of 24 computer terminals for participants who were free to sit in any available seat.

With a between-subjects design, 165 participants (39 women) were randomly assigned into one of two conditions in which they were exposed to either Happy Music (72 participants) or Unhappy Music (93 participants).

In each case, once participants were welcomed to participate in the study and provided instructions for the decision-making tasks that we prepared for them, they were asked to wear headphones that were available on each desk. Through a centralized audio system, we were able to ensure that the volume was uniformly audible – at a comfortable level – for all of the experiment's participants.

Participants' desks in the lab included privacy hoods that helped to ensure that each person's decisions were free from visual knowledge of decisions that people sitting near them made. Participants' attention during the decision-making tasks was focused on the computers through which we provided decision prompts through software that is maintained through the University of Virginia's public-domain VECON Lab website (veconlab.econ.virginia.edu).

In addition to partial course credit, participants earned cash compensation that was contingent upon the decisions that they and their fellow participants made during the course of the experiment. Average cash compensation for our sessions was $5 for each participant, with a range from $3 to $7. The experimental sessions lasted an average of 20 minutes.

Independent Variable

For stimuli, we selected a set of four "happy" songs including "Yellow Submarine" by the Beatles and the theme song from "Happy Days" as well as a set of comparably long "unhappy" songs by less familiar "heavy metal" bands. We pretested the stimuli with a sample

of 43 undergraduate students who listened to two songs from one of the two conditions. Average ratings for the two groups of songs varied significantly according to each of the four measures that we assessed. Specifically, for the "happy songs," raters indicated significantly more agreement with the statements that "the song was happy" ($F = 186.9$, $p < .001$) and "I liked the song that I just heard" ($F = 44.5$, $p < .001$) and significantly more disagreement with the statement that "the song was angry" ($F = 289.0$, $p < .001$). As a fourth measure inspired by Fiske, Cuddy, Glick, and Xu (2002), raters indicated significantly greater "warmth" when asked "How 'cold' or 'warm' do you consider the song that you just heard" ($F = 112.8$, $p < .001$).

Each set of songs lasted approximately 12 minutes; consequently, it is noteworthy that we continuously looped or repeated some of the songs slightly more than once in each of the experimental sessions.

Dependent Variables

Cooperative Performance. To measure cooperation as a function of our musical conditions, we administered the public goods "game" known as the Voluntary Contribution Mechanism (VCM) (e.g., Isaac & Walker, 1988; Rondeau et al., 2005; Wiltermuth & Heath, 2009). In each round of this game, participants receive a fixed sum of money across an unspecified number of iterations or "rounds" during which they are asked what portion to allocate to a group pool and what portion to retain for private use. In our case, participants were allocated a total 10 symbolic tokens – corresponding to actual cash values – in each round for them to allocate as they wished with 0 to 10 tokens being allocated to either the group or private accounts.

As part of the VCM that is designed to incentivize and reward cooperation, we set the parameters so that contributions to the group pool were multiplied by 1.5 before being split evenly by the software program among the three people within each decision-making group. Participants in each of our sessions made decisions interactively with a fixed but randomly assigned set of two other people for the duration of the rounds. Participants were not informed of the identity of their partners at any point during the experiment (e.g., they could have been interacting with their immediate neighbor or someone at the opposite corner of the room). Participants also did not talk with each other during the experiment partly because previous tests of the VCM have found that even relatively small amounts of "cheap talk" immediately prior to the VCM tends to increase people's contributions to the public good (e.g., Messer et al., 2007).

Each session involved 20 rounds of the same public goods dilemma, but participants were not informed of the specific number of rounds until we were done in order to avoid "last round effects" (e.g., Gintis, 2000) where the incentive for retaining all of one's money would significantly increase because – in this kind of *ad hoc* group (cf. Hollenbeck, Beersma, & Schouten, 2012) – there would be no prospect of potential reciprocity if someone were to "cheat" the group and engage in purely selfish behavior (Axelrod, 1984). For purposes of our analysis, we focus on the individual-level contributions made by each participant across all 20 rounds. While it is noteworthy that only the 165 observations from Round 1 can be considered fully independent since individual decisions in rounds 2 through 20 will be influenced by the outcome of previous rounds, our analysis is able to consider 3,300 decisions (165 participants x 20 rounds) to cooperate or not in relation to a public good that was tied to the actual compensation that participants were allocated. In this respect, we follow the analytical approaches adopted by Wiltermuth and Heath (2009) as well as Messer, Suter, and Yan (2013) for the VCM.

Mood. With the benefit of more flexibility and time to administer the second four of the eight sessions that we conducted, we included a four-item mood short form (Peterson & Sauber, 1983) in order to assess mood before, during, and after the experiment. Asked to rate their agreement on a scale of 1 (strongly disagree) to 5 (strongly agree), participants were presented with the statements: "Currently, I am in a good mood," "As I answer these questions, I feel cheerful," "For some reason I am not very comfortable right now," and "At this moment, I feel edgy or irritable." Values for the third and fourth questions are reverse-coded and the sum of the four measures comprises a score for mood in which higher numbers reflect more positive moods.

In order to measure mood changes across the course of our experiments, we assessed mood immediately after gaining informed consent (Mood 1), immediately prior to the first round of the VCM (Mood 2), in between Rounds 10 and 11 of the VCM (Mood 3), and immediately after the final round of the VCM (Mood 4). Reliability analyses indicated that each of the Mood measures were internally coherent (Mood 1: $\alpha = .81$; Mood 2: $\alpha = .86$; Mood 3: $\alpha = .81$; Mood 4: $\alpha = .85$).

Control Variables

In order to assess the potential influence of demographic variables, we asked participants to indicate their gender and register their age within one of four categories: 18-22 (1), 23-29 (2), 30-39 (3), and 40 or more years (4). We also asked participants to report their major or field of specialization in light of previous research showing that public goods experiments can elicit significantly more selfish responses from Economics students when compared with students

pursuing other majors (e.g., Frank, Gilovich, & Regan, 1993; Wang, Malhotta, & Murnighan, 2011).

Results

As illustrated in Table 1, we found significant differences in cooperative behavior as well as mood when comparing participants who listened to Happy and Unhappy music. More specifically, the random assignment of individuals to each treatment is reflected by the absence of significant demographic differences. As four measures of cooperative behavior, Table 1 selectively presents snapshots from Rounds 1, 5, 10, 15, and 20 of the VCM and significant differences are reported between the conditions for three of the five rounds (5, 10, and 20). For our four measures of mood, Table 1 shows that initial mood measures – assessed immediately after gaining informed consent – were randomly distributed between the treatments while the effect of musical treatment persisted strongly upon mood throughout the rest of the experiment.

Insert Table 1 about here

Based upon the correlations presented in Table 2, it is also notable – since it reinforces our interpretation of the importance of the musical treatments – that the three demographic variables (age, gender, and Economics major) had very minimal relationships with our measures of cooperative behavior and mood.

Insert Table 2 about here

As depicted in Figure 1's round-by-round line graph of group-level contributions, it is interesting and consistent with the individual-level patterns found in Table 1 to see at different points in the experiment that groups listening to Happy music tend to generate greater contributions to the public good. More specifically, Figure 1 shows the variable patterns of cooperation – as a function of musical condition – according to the average sum of individual contributions to each group across rounds. Through that perspective, each group is able to pool between 0 and 30 tokens given the possible scenarios that include the minimum in which the group members contribute nothing to the public good and the maximum in which participants contribute each of their 10 tokens to the group account.

Insert Figure 1 about here

It is worth highlighting that the design of the experiment – like many naturalistic dilemmas that reward cooperation among partners (e.g., Axelrod, 1984) – generates a payout of 15 tokens for each participant when everyone contributes the maximum given the multiplier of 1.5 for contributions to the group accounts. In contrast, when participants uniformly make no

contributions to the public good, each person is limited to the 10 tokens that they choose to retain rather than cooperatively invest in the group.

Other patterns that are notable in Figure 1 include the decay in cooperation that is found for participants in both conditions – and is typical for participants in multi-round versions of the VCM (e.g., Isaac & Walker, 1988). Similarly, the temporary increase in contributions that is found for participants in both treatments likely reflects that participants were uniformly pleased upon realizing that they were going to earn cash as well as partial course credit for participating in the study given previous research on experimental incentives (Meloy, Russo, & Miller, 2006). Finally and importantly, Figure 1 helps to illustrate the fact that mood remains elevated throughout the course of the experiment as a function of Happy Music even as contributions to the public good decay.

In order to test for our main prediction that Happy music contributes significantly to cooperative behavior beyond the *t* tests reported in Table 1, we conducted a set of regressions that considered the relevance of our musical treatment for the individual VCM contributions across the entirety of the 20 rounds as well as successive five-round subsets. As indicated in Table 3, Happy music does significantly predict greater cooperative behavior in the VCM with the notable exception of Rounds 11-15.

Insert Table 3 about here

In order to examine the role of mood in relation to cooperative behavior, Table 4 presents two models that show that a robust influence of mood that is independent of our musical treatment. Model 1 considers each of the individuals' contributions in each round as the dependent variable and takes an average of our second and third mood measures for predicting Rounds 1 through 10 and an average of our third and fourth mood measures for predicting Rounds 11 through 20. Model 2 considers simply the average contribution across all 20 rounds as the dependent variable and takes an average of the second, third, and fourth mood measures as the independent variable.

Insert Table 4 about here

Based upon the full set of analyses that we conducted, while the decay that is illustrated through Figure 1 is common for public goods experiments, the absence of a treatment effect for Rounds 11 through 15 is striking. While it is plausible that participants reacted negatively to hearing some of the music replay a second time, there is no reason to expect that the influence of replaying some of the music should have differentially impacted the two treatments. Instead, our findings generate the conclusion that musical influences on behavior, at least, have initial importance but can moderate and disappear over time. Further, our experiment indicates that previous experimental attempts to elicit prosocial behavior through listening to music (Greitemeyer, 2009a, 2009b, 2011) or creating music through the activity of singing (Wiltermuth

& Heath, 2009) should be reviewed in light of the substantially shorter set of decisions that their participants were asked to make.

Discussion

Given the pervasiveness of music and its careful use by marketers to "pipe" music into places (e.g., supermarkets, elevators, lobbies, exercise gyms, and hair salons) where people might "mindlessly" be influenced (e,g., Wansink, 2006), it is time for organizational studies to pay closer attention to the potential of music to influence workplace behavior. While music in the workplace is stereotypically associated with the kind of "routinized," blue-collar work where the role of music has been qualitatively studied (Korczynski, 2011), the example of surgeons that we discussed helps to illustrate the broader potential value of studying – and using – music in the workplace.

Limitations and Future Research

Among the limitations of the present experiment that future research can consider further, the music that we selected could certainly be refined to provide more subtle contrasts. For example, it seems plausible that "happy" songs with collectivist themes – and consistent references to the first-person plural "we" – might elicit more cooperation and better moods than happy songs with individualist themes (cf. Sela, Wheeler, & Sarial-Abi, 2012). Similarly, our analysis omits potentially important variables such as individual-level personality measures (e.g., individualism-collectivism: Wagner, 1995). Given that other demographic traits were randomly

distributed in our experiment, the risk that personality differences spuriously accounted for the effects that we reported seems minimal; however, future research concerning the influence of different music upon behavior and mood would benefit from recognizing that some industries and firms have employees with disproportionate personality profiles (e.g., mostly individualists or mostly collectivists). Among additional differences from the current lab experiment, future research would also certainly benefit from conducting studies with naturalistic settings in which participants would be able to select their own music (e.g., to be played through headphones). Notably, Oldham et al. (1995) examined the influence of office workers wearing or not wearing headphones to hear music; however, their study does not consider differences in the musical content.

Conclusions

In stark contrast with the close focus that marketing researchers as well as psychologists, more generally, have committed to understanding the myriad roles of music primarily in relation to individual behavior, the dearth of studies focused on organizational impacts is startling. Through the present experiment, we found important patterns that included (1) periodic increases in cooperative behavior as a function of music and (2) persistent increases in mood as part of the same treatment. Given the fact that musical soundscapes can be manipulated with significantly greater ease than other aspects of workplace environments, it is especially worthwhile for organizational researchers to explore the role of music as a mechanism that can increase cooperative behavior.

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TABLE 1

Descriptive Statistics and Comparisons by Treatment

	Unhappy Music		**Happy Music**		***t***
Variable (Scale)	***M*** **N=93**	***SD***	***M*** **N=72**	***SD***	
Age (1-4)	1.097	0.419	1.056	0.231	0.227
Male (0/1)	0.796	0.405	0.722	0.451	1.099
Econ Major (0/1)	0.269	0.446	0.236	0.428	0.476
VCM 1 (0-10)	5.194	3.337	5.861	3.324	-1.277
VCM 5 (0-10)	4.118	3.535	6.347	3.353	-4.107***
VCM 10 (0-10)	3.398	3.657	4.667	3.419	-2.274*
VCM 15 (0-10)	3.731	3.800	3.972	3.552	-0.416
VCM 20 (0-10)	3.011	3.826	4.347	3.933	-2.198*
	N=48		**N=39**		
Mood 1 (4-20)	14.333	3.251	14.256	3.201	0.1105
Mood 2 (4-20)	13.167	3.551	15.077	3.223	-2.600**
Mood 3 (4-20)	11.917	3.566	14.897	2.722	-4.300***
Mood 4 (4-20)	11.739	4.117	14.615	3.306	-3.507***

* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

TABLE 2

Descriptive Statistics and Correlations

Variable (Scale)	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Age (1-4)	1.08	.35	1											
2. Male (0/1)	.76	.43	-.12	1										
3. Econ Major (0/1)	.25	.44	.05	-.11	1									
4. Happy Music (0/1)			-.10	-.16	.04	1								
5. VCM 1 (0-10)	5.48	3.34	.03	.12	.03	.11	1							
6. VCM 5 (0-10)	5.09	3.62	.10	.06	.16	.31**	.41**	1						
7. VCM 10 (0-10)	3.95	3.60	-.06	-.01	.02	.26*	.24**	.57**	1					
8. VCM 15 (0-10)	3.84	3.68	.20	.08	-.07	.01	.21**	.37**	.61**	1				
9. VCM 20 (0-10)	3.59	3.92	.09	.01	.05	.30**	.23**	.22**	.38**	.40**	1			
10. Mood 1 (4-20)	14.30	3.21	-.17	.12	-.16	-.01	.15	.09	-.04	-.05	-.07	1		
11. Mood 2 (4-20)	14.02	3.52	-.20*	.12	-.19	.26*	.15	.22*	.05	-.09	.09	.77**	1	
12. Mood 3 (4-20)	13.25	3.53	-.04	-.07	-.04	.42**	.06	.29**	.32**	.16	.17	.35**	.59**	1
13. Mood 4 (4-20)	13.06	4.01	.03	-.09	-.06	.36**	.17	.33**	.17	.15*	.23*	.33**	.60**	.77**

* $p < .05$
** $p < .01$

TABLE 3

Results of Regression Analyses for Predicting Individual-Level Contributions

	(1)	(2)	(3)	(4)	(5)
	Contributions 1-20	**Contributions 1-5**	**Contributions 6-10**	**Contributions 11-15**	**Contributions 16-20**
Happy Music	1.536**	1.323*	2.231***	0.886	1.705**
	(0.003)	(0.015)	(0.000)	(0.171)	(0.008)
Round	-0.0687**	-0.100	-0.194*	0.0897	-0.0609
	(0.003)	(0.265)	(0.023)	(0.291)	(0.557)
_cons	5.056***	5.433***	5.487***	3.251**	4.951**
	(0.000)	(0.000)	(0.000)	(0.008)	(0.009)
N	1740	435	435	435	435

Non-significant *p*-values in parentheses. Group-clustered standard errors were used to calculate p values.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

TABLE 4

Results of Regression Analyses for Predicting Individual-Level Contributions Using Mood

	(1)	(2)
	Contributions 1-20	**Average Individual Contribution**
Mood	0.253*** (0.000)	0.243*** (0.003)
Round	-0.060** (0.009)	--
_cons	2.273** (0.023)	1.789 （0.105）
N	1720	85

Non-significant *p*-values in parentheses. Group-clustered standard errors were used to calculate p values.
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

FIGURE 1

Group-Level Contributions Round-by-Round with Individual-Level Mood Measures