

Moral Time: Does Our Internal Clock Influence Moral Judgments?

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Does morality depend on the time of the day? The study [*The Morning Morality Effect: The Influence of Time of Day on Unethical Behavior*](#) (1) published in October of 2013 by Maryam Kouchaki and Isaac Smith suggested that people are more honest in the mornings and that their ability to resist the temptation of lying and cheating wears off as the day progresses. In a series of experiments, Kouchaki and Smith found that moral awareness and self-control in their study subjects decreased in the late afternoon or early evening. The researchers also assessed the degree of “moral disengagement,” i.e. the willingness to lie or cheat without feeling much personal remorse or responsibility, by asking the study subjects to respond to questions such as, “Considering the ways people grossly misrepresent themselves, it’s hardly a sin to inflate your own credentials a bit,” or “People shouldn’t be held accountable for doing questionable things when they were just doing what an authority figure told them to do” on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Interestingly, the subjects who strongly disagreed with such statements were the most susceptible to the morning morality effect. They were quite honest in the mornings but significantly more likely to cheat in the afternoons. On the other hand, moral disengagers, i.e. subjects who did not think that inflating credentials or following questionable orders was a big deal, were just as likely to cheat in the morning as they were in the afternoons.



Understandably, the study caused quite a bit of ruckus and became one of the most widely discussed psychology research studies in 2013, covered widely by blogs and newspapers such as the Guardian with its article [*Keep the mornings honest, the afternoons for lying and cheating*](#) (2) or the German Süddeutsche Zeitung piece [*Lügen erst nach 17 Uhr*](#) (3) (Lying starts at 5 p.m.). And the findings of the study also raised important questions: Should organizations and businesses take the time of day into account when assigning tasks to employees that require high levels of moral awareness? How can one prevent the “moral

exhaustion” in the late afternoon and the concomitant rise in the willingness to cheat? Should the time of the day be factored into punishments for unethical behavior?

One question not addressed by Kouchaki and Smith was whether the propensity to become dishonest in the afternoons or evenings could be generalized to all subjects or whether the internal time in the subjects was also a factor. All humans have an internal body clock – the circadian clock that runs with a period of approximately 24 hours. The circadian clock controls a wide variety of physical and mental functions such as our body temperature, the release of hormones, or our levels of alertness. The internal clock can vary among individuals, but external cues such as sunlight or the social constraints of our society force our internal clocks to be synchronized to a pre-defined external time, which may be quite distinct from what our internal clock would choose if it were to “run free.” Free-running internal clocks of individuals can differ in terms of their period (for example 23.5 hours versus 24.4 hours) as well as the phases of when individuals would preferably engage in certain behaviors. Some people like to go to bed early and wake up at 5 a.m. or 6 a.m. on their own even without an alarm clock, and they experience peak levels of alertness and energy before noon. In contrast to such “larks,” there are “owls” among us who prefer to go to bed late at night, wake up at 11 a.m., experience their peak energy levels and alertness in the evening hours, and stay up way past midnight.

It is not always easy to determine our “chronotype” – whether we are “larks,” “owls,” or some intermediate thereof – because our workday often imposes its demands on our internal clocks. Schools and employers have set up the typical workday in a manner that favors “larks,” with workdays usually starting around 7 a.m. to 9 a.m. In 1976, the researchers Horne and Östberg developed a Morningness-Eveningness Questionnaire to investigate what time of the day individuals would prefer to wake up, work, or take a test if it was entirely up to them. They found that roughly 40% of the people they surveyed had an evening chronotype!

If Kouchaki and Smith’s findings that cheating and dishonesty increases in the late afternoons applies to both morning and evening chronotype folks, then the evening chronotypes (“owls”) are in a bit of a pickle. Their peak performance and alertness times would overlap with their propensity to be dishonest. The researchers Brian Gunia, Christopher Barnes, and Sunita Sah therefore decided to replicate the Kouchaki and Smith study with one major modification: They not only assessed the propensity to cheat at different times of the day, they also measured the chronotypes of the study participants. Their recent paper [*The Morality of Larks and Owls: Unethical Behavior Depends on Chronotype as Well as Time of Day*](#) (4) confirms that Kouchaki and Smith findings that the time of the day influences honesty, but the observed effects differ among chronotypes.

After assessing the chronotypes of 142 participants (72 women, 70 men, mean age 30 years), the researchers randomly assigned them to either a morning session (7 to 8:30 a.m.) or an evening session (12 a.m. to 1:30 a.m.). The participants were asked to report the outcome of a die roll; the higher the reported number, the more raffle tickets they would receive for a large prize, which served as an incentive to inflate the outcome of the roll. Since a die roll is purely random, one would expect that reported average of the die roll results would be

similar across all groups if all participants were honest. Their findings: Morning people (“larks”) tended to report higher die-roll numbers in the evening than in the morning – thus supporting the Kouchaki and Smith results – but evening people tended to report higher numbers in the morning than in the evening. This means that the morning morality effect and the idea of “moral exhaustion” toward the end of the day cannot be generalized to all. In fact, evening people (“owls”) are more honest in the evenings.

Not so fast, say Kouchaki and Smith in a [commentary published together with the new paper by Gunia and colleagues](#). (5) They applaud the new study for taking the analysis of daytime effects on cheating one step further by considering the chronotypes of the participants, but they also point out some important limitations of the newer study. Gunia and colleagues only included morning and evening people in their analysis and excluded the participants who reported an intermediate chronotype, i.e. not quite early morning “larks” and not true “owls.” This is a valid criticism because [newer research on chronotypes](#) (6) by Till Roenneberg and his colleagues at the University of Munich has shown that there is a Gaussian distribution of chronotypes. Few of us are extreme larks or extreme owls; most of us lie on a continuum. Roenneberg's approach to measuring chronotypes looks at the actual hours of sleep we get and distinguishes between our behaviors on working days and weekends because the latter may provide a better insight into our endogenous clock, unencumbered by the demands of our work schedule. The second important limitation identified by Kouchaki and Smith is that Gunia and colleagues used 12 a.m. to 1:30 a.m. as the “evening condition.” This may be the correct time to study the peak performance of extreme owls and selected night shift workers, but ascertaining cheating behavior at this hour is not necessarily relevant for the general workforce.

Neither the study by Kouchaki and Smith nor the new study by Gunia and colleagues provide us with a definitive answer as to how the external time of the day (the time according to the sun and our social environment) and the internal time (the time according to our internal circadian clock) affect moral decision-making. We need additional studies with larger sample sizes that include a broad range of participants with varying chronotypes as well as studies that assess moral decision-making not just at two time points but also include a range of time points (early morning, afternoon, late afternoon, evening, night, etc.). But the two studies have opened up a whole new area of research, and their findings are quite relevant for the field of [experimental philosophy](#) (7), which uses psychological methods to study philosophical questions. If empirical studies are conducted with human subjects then researchers need to take into account the time of the day and the internal time and chronotype of the participants, as well as other physiological differences between individuals.

The exchange between Kouchaki and Smith and Gunia and colleagues also demonstrates the strength of rigorous psychological studies. Researcher group 1 makes a highly provocative assertion based on their data; researcher group 2 partially replicates it and qualifies it by introducing one new variable (chronotypes), and researcher group 1 then analyzes strengths and weaknesses of the newer study. This type of constructive criticism and dialogue is essential for high-quality research. Hopefully, future studies will be conducted to provide more insights into this question. By using the Roenneberg approach to assess chronotypes,

one could potentially assess a whole continuum of chronotypes – both on working days and weekends – and also relate moral reasoning to the amount of sleep we get. Measurements of body temperature, hormone levels, brain imaging, and other biological variables may provide further insight into how the time of day affects our moral reasoning.

Why is this type of research important? I think that realizing how dynamic moral judgment can be is a humbling experience. It is easy to condemn the behavior of others as “immoral,” “unethical,” or “dishonest” as if these are absolute pronouncements. Realizing that our own judgment of what is considered ethical or acceptable can vary because our personal internal clock or the external time of the day reminds us to be less judgmental and more appreciative of the complex neurobiology and physiology that influence moral decision-making. If future studies confirm that the internal time (and possibly sleep deprivation) influence moral decision-making, then we need to carefully rethink whether the status quo of forcing people with diverse chronotypes into a compulsory 9-to-5 workday is acceptable. Few, if any, employers and schools have adapted their work schedules to accommodate chronotype diversity in human society. Understanding that individualized work schedules for people with diverse chronotypes may not only increase their overall performance but also increase their honesty might serve as another incentive for employers and schools to recognize the importance of chronotype diversity among individuals.

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