

Supplementary Figures

Figure S1. Schematic of the study protocol. Monetary compensation of up to \$295 was provided, and participants were given the study smartwatch that they used in the protocol. After completing secondary screening, participants received \$25 for the returning activity monitor. At the end of month 2, participants received \$40 and a micro-incentive of \$0.25 for every message they acknowledged within 30 minutes of delivery (up to \$45). At the end of month 4, participants received \$40 and a micro-incentive of \$0.25 for every message they acknowledged within 30 minutes of delivery (up to \$45). At the end of month 6, participants received \$55 and a micro-incentive of \$0.25 for every message they acknowledged within 30 minutes of delivery (up to \$45).

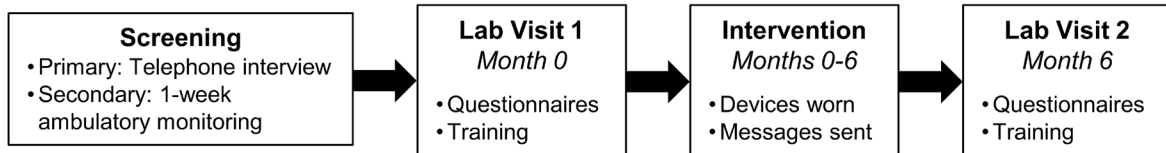


Figure S2. Participant flow in the Random AIM trial.

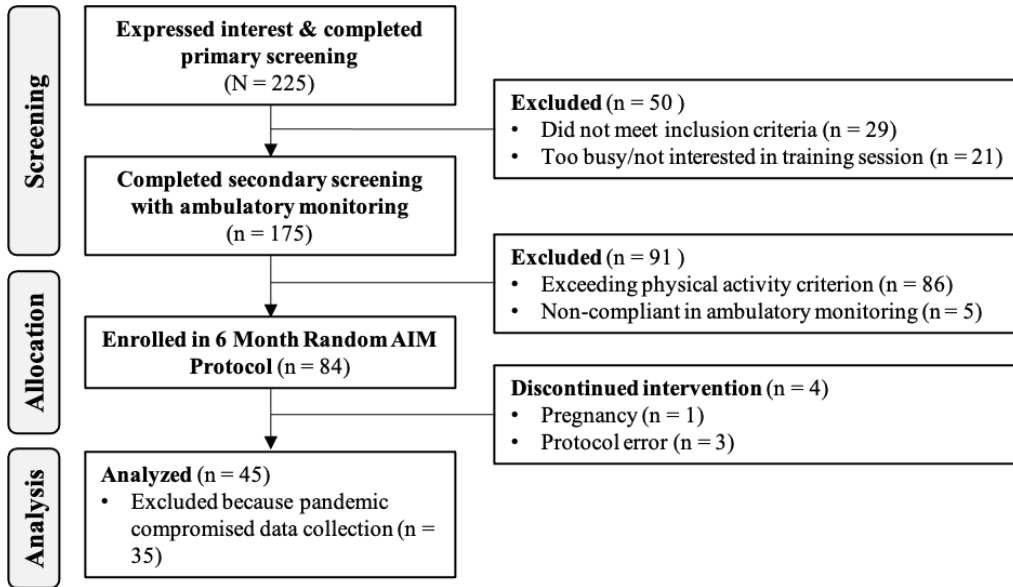


Figure S3. Message timing in the Random AIM trial. Frequency of daily timing outside of the do not disturb time window (top row) and across the calendar year (bottom row)

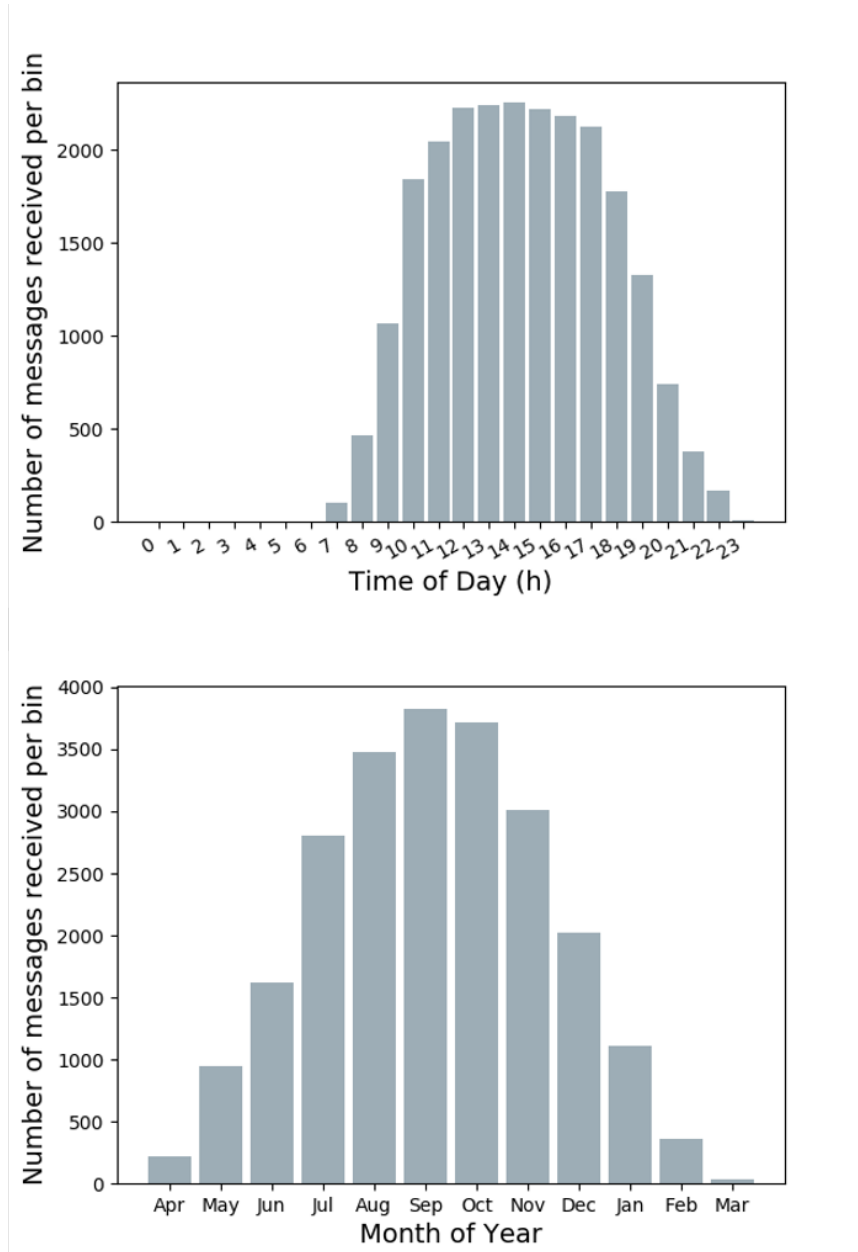


Figure S4. Simulated impulse response curves (left panels) and cumulative step response curves (right panels) for weekdays (top row) and weekends (bottom row) for participant #aim122. The top row presents responses on weekdays and the bottom row presents responses on weekends. The x-axis represents time since message delivery, and the y-axis represents either predicted instantaneous changes in movement (left panels) or the predicted cumulative behavior change (right panels) as a function of the time following message delivery and the type of message. The narrow grey lines in each plot represent the error margins for the system response (responses within those error margins are assumed to be trivial).

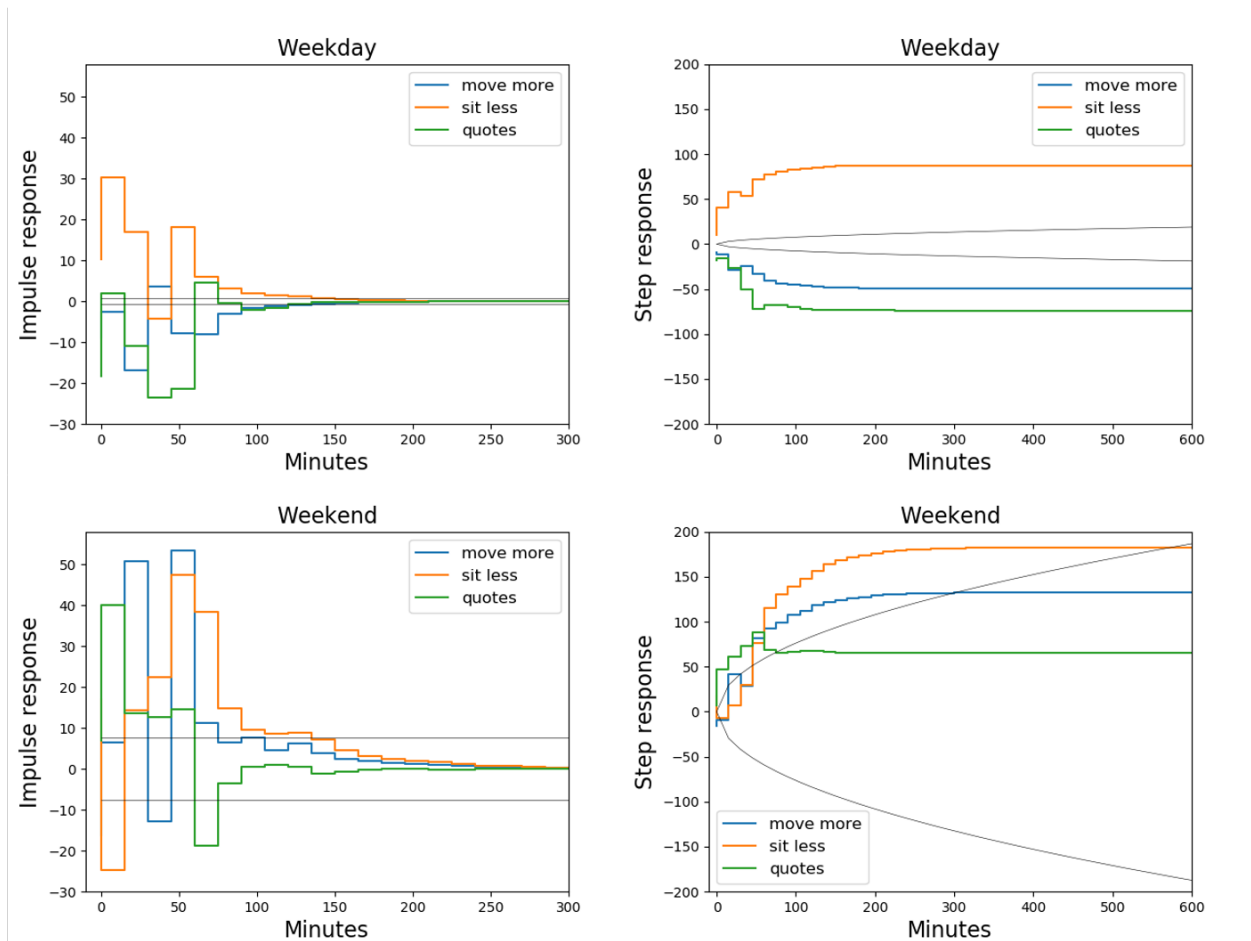


Figure S5. Simulated impulse response curves (left panels) and cumulative step response curves (right panels) for weekdays (top row) and weekends (bottom row) for participant #aim149. The top row presents responses on weekdays and the bottom row presents responses on weekends. The x-axis represents time since message delivery, and the y-axis represents either predicted instantaneous changes in movement (left panels) or the predicted cumulative behavior change (right panels) as a function of the time following message delivery and the type of message. The narrow grey lines in each plot represent the error margins for the system response (responses within those error margins are assumed to be trivial).

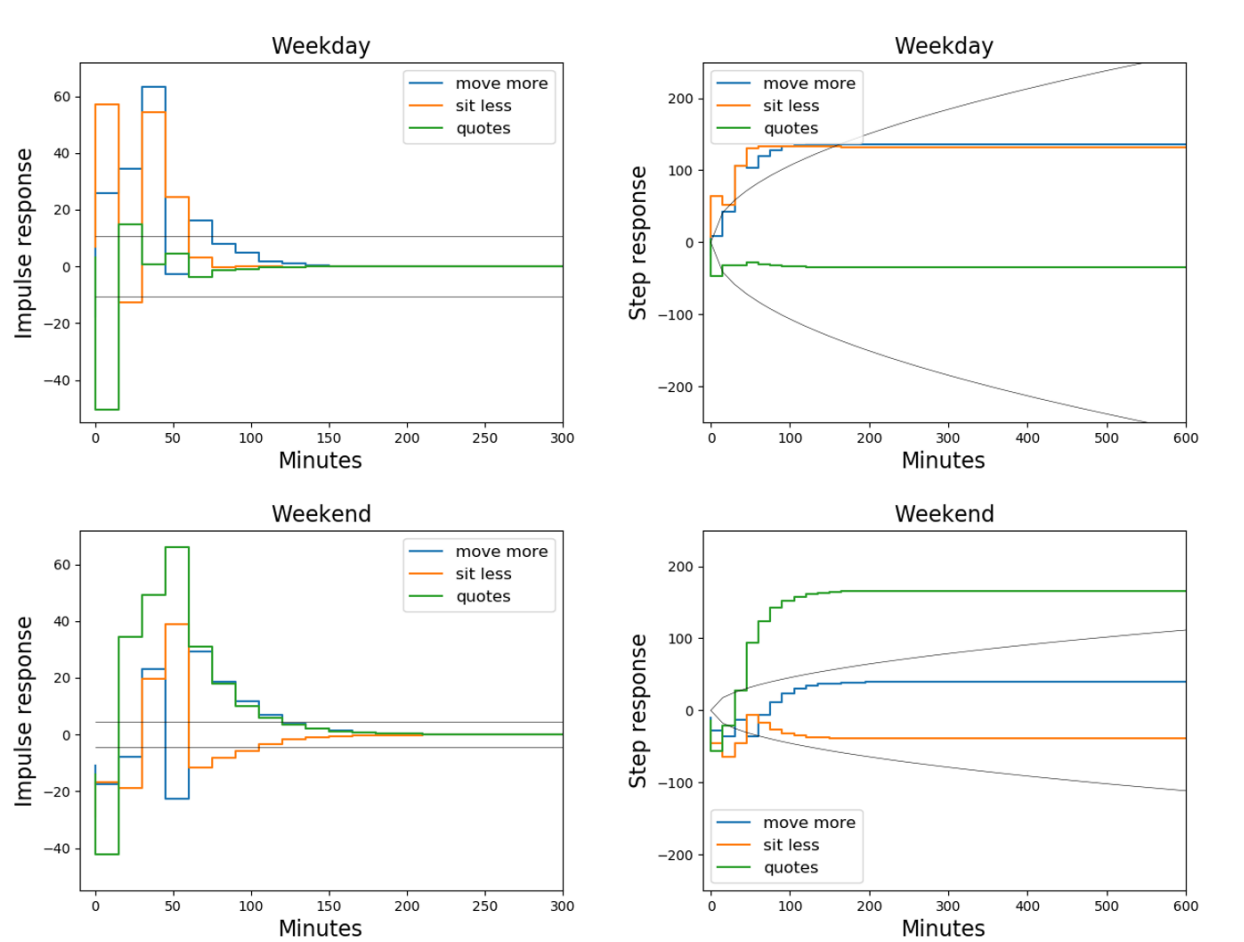


Figure S6. Simulated impulse response curves (left panels) and cumulative step response curves (right panels) for weekdays (top row) and weekends (bottom row) based on the generic model. The top row presents responses on weekdays and the bottom row presents responses on weekends. The x-axis represents time since message delivery, and the y-axis represents either predicted instantaneous changes in movement (left panels) or the predicted cumulative behavior change (right panels) as a function of the time following message delivery and the type of message. The narrow grey lines in each plot represent the error margins for the system response (responses within those error margins are assumed to be trivial).

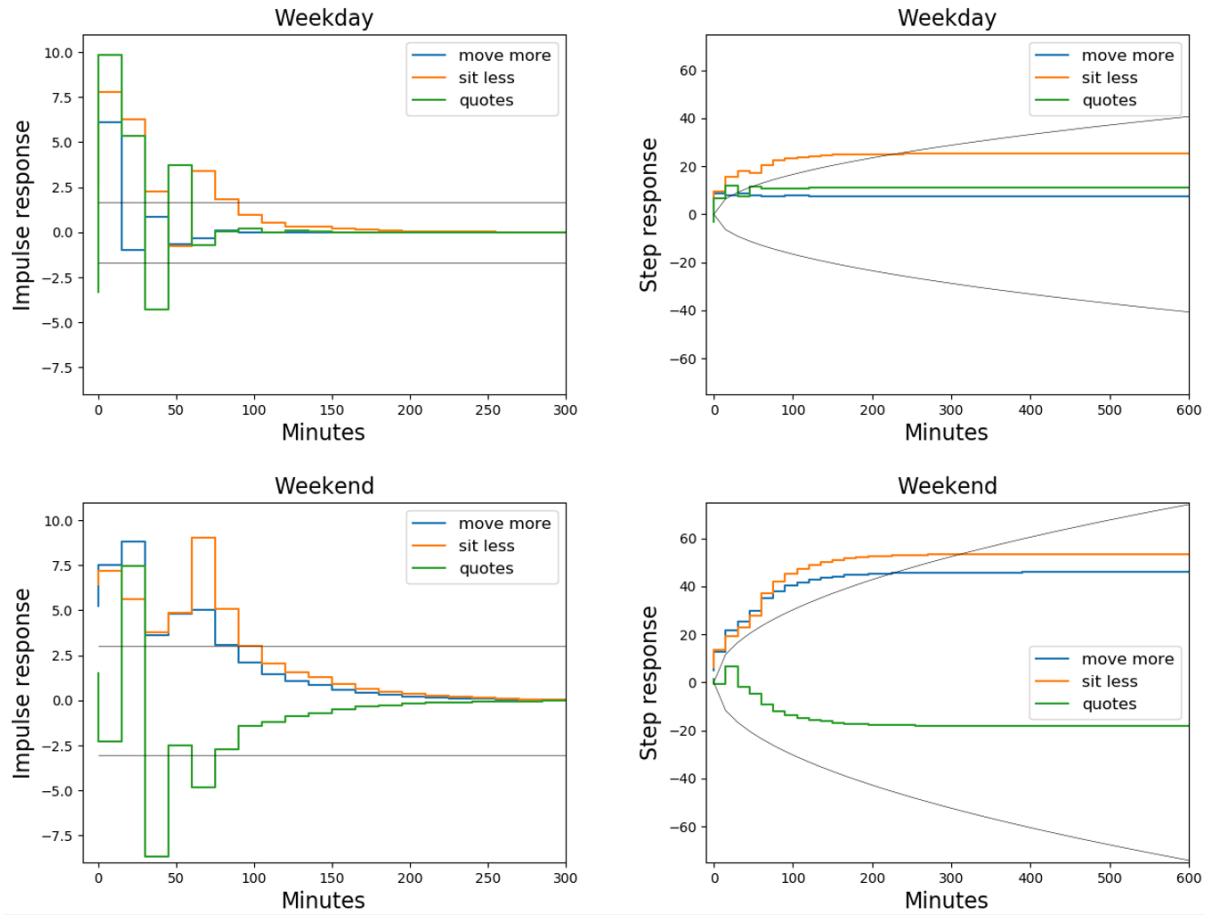


Figure S7. Simulated cumulative step response curves for three types of messages delivered at different temperatures on weekdays (top row) and weekends (bottom row) for participant #aim122.

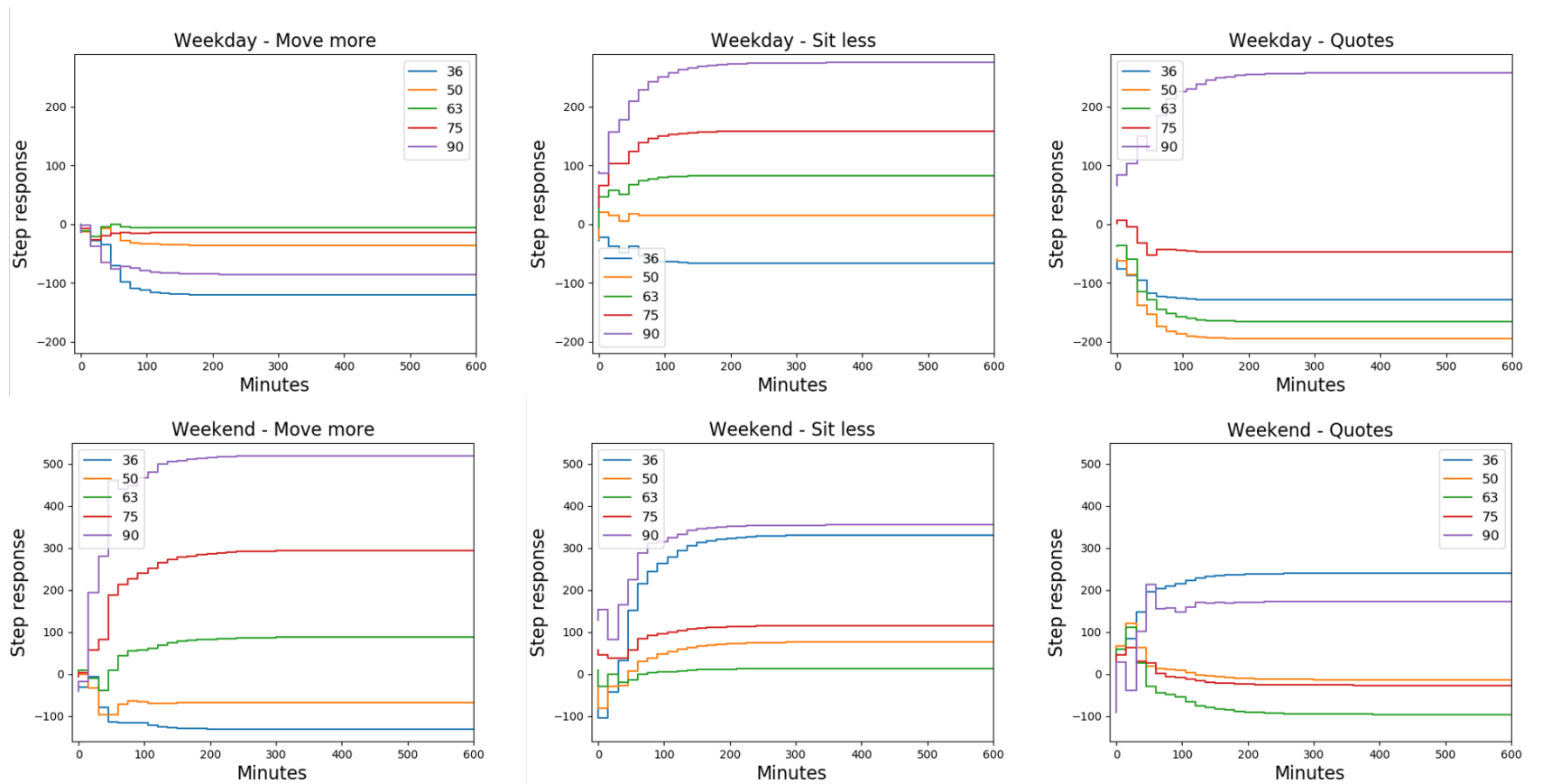


Figure S8. Simulated cumulative step response curves for three types of messages delivered at different temperatures on weekdays (top row) and weekends (bottom row) for participant #aim149.

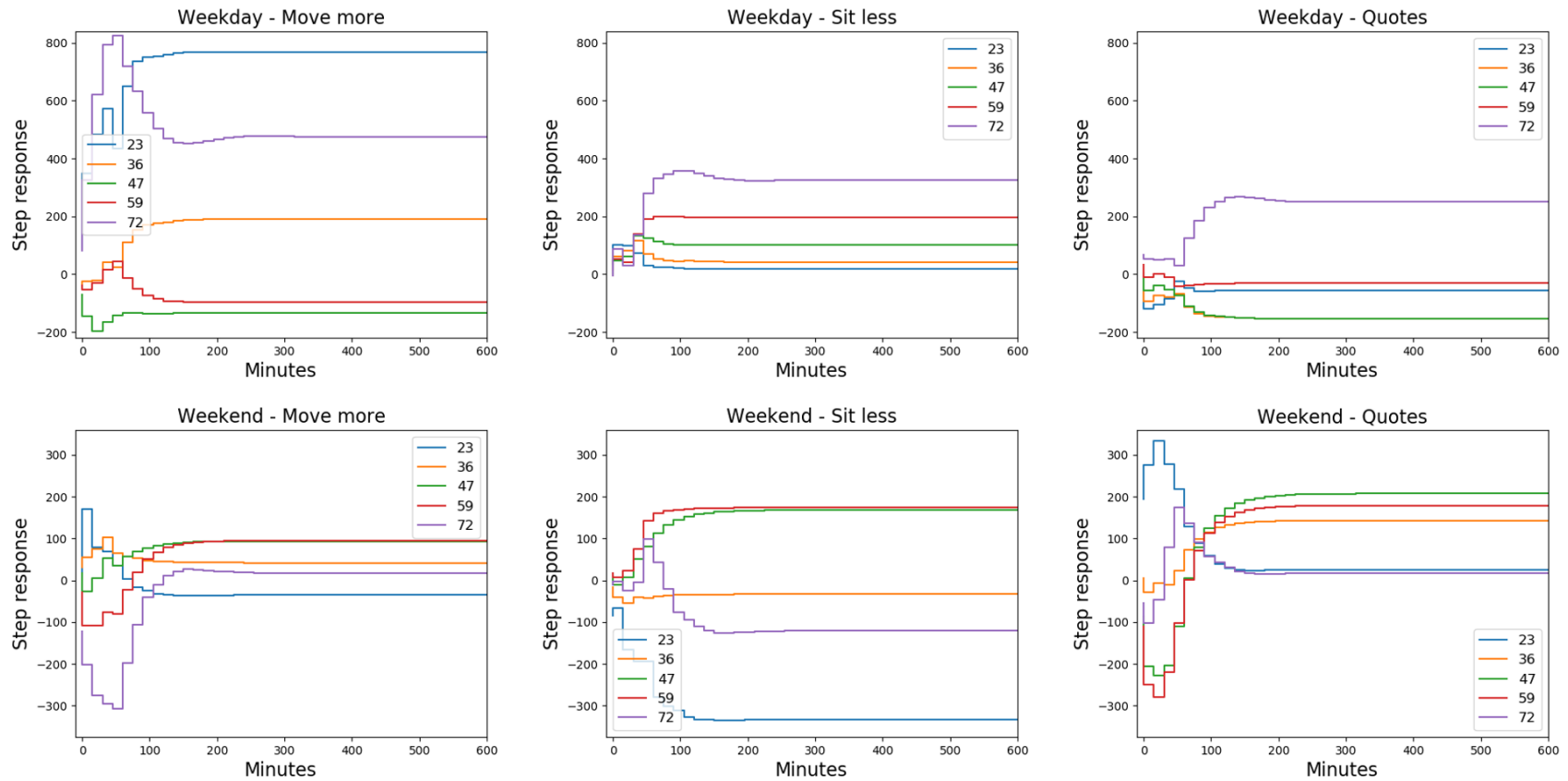


Figure S9. Simulated cumulative step response curves for three types of messages delivered at different temperatures on weekdays (top row) and weekends (bottom row) based on the generic model.

