The impact of agentic and communal exercise messages on individuals’ exercise class attitudes, self-efficacy beliefs, and intention to attend

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Abstract

We tested the effects of advertisements about a fictitious exercise class—derived using the theoretical constructs of agency and communion—on recipients’ perceptions about, and interest in, the class. The final sample consisted of 150 adults ($M$ age = 44.69, $SD$ = 15.83). Results revealed that participants who received a communal-oriented message reported significantly greater exercise task self-efficacy and more positive affective attitudes relative to those who received an agentic-oriented message. Communal (relative to agentic) messages were also indirectly responsible for greater intentions to attend the class, via more positive self-efficacy beliefs and affective attitudes. These findings were obtained despite the use of another manipulation to orient participants to either agency or communion goals. The results indicate that the primacy of communion over agency for message recipients may extend to exercise settings and may occur irrespective of whether participants are situationally oriented toward agency or communion.

**Keywords:** Agency; Communion; Messaging; Persuasion; Exercise
The impact of agentic and communal exercise messages on individuals’ exercise class attitudes, self-efficacy beliefs, and intention to attend

Physical activity engagement is associated with numerous positive outcomes for individuals’ physical and psychological health (e.g., Penedo & Dahl, 2005). Despite these benefits, the global prevalence of physical inactivity is high, particularly when activity is measured objectively (Hallal, Andersen, Bull, Guthold, Haskell, & Ekelund, 2012). One critical task of health professionals, whether they work directly with individuals or groups, or are responsible for enacting societal-level policy, is to promote healthful physical activity. The use of effective communications that target the psychological predictors of activity engagement represents one way in which health professionals can address this task. Consistent with this aim, health and exercise psychologists have sought to develop persuasive messages that are effective in shaping individuals’ thoughts about exercise (e.g., self-efficacy beliefs and attitudes), with the goal of enhancing individuals’ physical activity participation.

Previous studies of persuasive communications for physical activity have focused on comparing the efficacy of message content that varies across a number of different dimensions. For example, researchers have examined the effect of appearance-based relative to health-based advertising messages (Berry & Howe, 2004, 2005), messages focused on an apparel product or a fitness model (Sabiston & Chandler, 2010), as well as messages that have been tailored (i.e., to suit individual characteristics), framed (i.e., focused on gains or losses), or focused on self-efficacy (see Latimer, Brawley, & Bassett, 2010). Although this research has provided useful insight into the effectiveness of different types of message content, it is critical that researchers continue to gain insight into the effects of message content so as to meet the considerable challenge of crafting messages that can change the drivers of (and actual) physical activity behavior (Latimer et al., 2010). In the present study, we address this call by examining the relative effectiveness of persuasive physical activity messages that are focused specifically on exercise—derived using the theoretical constructs of agency and communion—and have not previously been examined.
Although concerns, values, and motives relating to agency and communion are prominent drivers of human behavior (Abele & Wojciszke, 2014; Bakan, 1966), researchers have yet to investigate the effects of persuasive exercise messages based on these concepts. Accordingly, this study represents an initial attempt to compare the relative effectiveness of message content that has been framed using these constructs.

**Agency and Communion**

Agency and communion, the so called “big two” (Abele & Wojciszke, 2014), are theoretical concepts used to conceptualize differences in constructs such as motives, personality, values, and behavior. **Agency** relates to mastery and the pursuit of individual success, and involves a focus on *self*-profitability, whereas **communion** relates to the establishment and maintenance of interpersonal connections, and involves a focus on *other*-profitability (Abele & Wojciszke, 2014). For example, an exercise class attendee who is focused primarily on agency may be most concerned with being the fittest member in the class, whereas another attendee who is focused more on communion may be most concerned with forming meaningful relationships with others in the class. Research findings support the relevance of agency and communion to understanding behavior. For instance, Wojciszke (1994) observed that, of 1,124 behavioral life events examined (i.e., descriptions of actual episodes provided by participants that had occurred in their own past), 73% of the episodes could be interpreted from an agency or communion perspective. Researchers have also sought to understand exercise behavior using agency and communion. For example, individuals may adopt self-presentation motives that reflect a desire to emphasize agentic or communal attributes to others, and these motives may align with task and social behavior within exercise settings (Howle, Jackson, Conroy, & Dimmock, 2015).

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1For the interested reader, Abele and Wojciszke (2014) provide a description of the emergence and use of these terms — first introduced in the psychological literature by Bakan (1966) — and outline comparisons with similar constructs (such as competence and warmth).
Although agency and communion have not yet been systematically focused upon (and compared) in studies of exercise messaging, there is theoretical and empirical support for the idea that individuals may respond differently to messages that emphasize either agentic or communal content. In their dual-perspective model of agency and communion, Abele and Wojciszke (2014) predicted that because communal content is “other-profitable”, it will be more valuable and important than “self-profitable” agentic content for the recipients of information. Other-profitable communal information (e.g., how helpful an individual is) provides information to others that is useful in understanding the intentions of an individual. Self-profitable agentic information (e.g., how capable an individual is) provides information to the self that is useful in individual goal pursuit. Other researchers have expressed a similar view, noting that individuals’ judgements about others’ warmth are primary to judgments made about others’ competence and carry more weight in influencing others’ reactions (Fiske, Cuddy, & Glick, 2007). An additional reason to anticipate a communion over agency effect is that individuals may generally expect to obtain agentic benefits from all exercise classes, and these benefits may be expected irrespective of the nature of advertising for the classes. By focusing on communal features, advertisers of exercise may draw individuals’ attention to additional benefits of exercise. In other words, agentic benefits from exercise may still be inferred through communal-oriented messaging (because exercise is inherently related to agentic qualities), whereas communal benefits are less likely to be inferred through agentic-oriented messaging.

In support of the view that communal characteristics are more influential in shaping the perceptions of others relative to agentic characteristics, evidence indicates that (a) individuals generally prefer communal traits, such as being sociable, relative to agentic traits, such as being skilful, in others, (b) communal information regarding others is preferentially processed (e.g., communal traits are inferred faster from others’ behavior than agentic traits, and communal traits tend to be mentioned prior to agentic traits when describing others), and (c) a target’s communal characteristics are more influential in shaping interpersonal preferences (i.e., the liking of the target).
relative to agentic characteristics (Abele & Brack, 2013; Abele & Bruckmüller, 2011; Wojciszke, Abele, & Baryla, 2009). The ‘primacy’ of communion over agency for recipients also appears to extend to advertising messages. Researchers have found, for example, that advertisements that highlight the communal (relative to agentic) characteristics of product endorsers promote more favorable attitudes toward the endorsers, the advertisement, and the brand (Infanger, Bosak, & Sczesny, 2012; Infanger & Sczesny, 2015).

The research reviewed above supports the communion over agency effect; however, we seek to understand whether the primacy of communion over agency generalizes to persuasive communication and messages that are focused on the agentic or communal characteristics of an exercise class. Consistent with previous exercise messaging work (Dimmock, Jackson, Clear, & Law, 2013), we chose to focus on a new and hypothetical exercise class (rather than exercise in general) so that participants’ responses to the messages were less likely to be shaped by their existing feelings and perceptions about exercise. Consistent with the primacy effect, we expected that message recipients would respond more favorably to messages that emphasize the communal benefits of exercise (e.g., developing friendships, socialising with others) rather than agentic benefits (e.g., enhancing appearance, improving fitness).

On first glance, effects thought to result from a focus on agency may be similar to effects predicted by other conceptual frameworks, such as self-determination theory (SDT; Ryan & Deci, 2000). Research findings indicate, for example, that feeling pressured to lose weight negatively predicts exercise uptake and positively predicts exercise drop out (Gillison, Standage, & Skevington, 2011), and that individuals with a larger discrepancy between their ideal and actual body size tend to have less relative autonomy for exercise (Markland & Ingledew, 2007). Using SDT, these types of findings have been interpreted as reflecting the negative outcomes that can occur when individuals perceive pressure to conform to societal standards (Markland & Ingledew, 2007). A focus on agency, however, is distinct in that it deals specifically with outcomes relevant and important for the self, incorporating a focus on one’s own success and mastery, rather than
dealing with perceptions of external pressure from others that undermine autonomy. The manipulations used in the present study were consistent with this understanding of agency.

The agency and communion perspective also differ from SDT in another way. SDT focuses on competence, relatedness, and autonomy as fundamental human needs. Whereas the strength of agency and communion are viewed as having important consequences (such as the behaviours and perceptions discussed previously), SDT is not concerned with the strength of individuals’ needs so much as the satisfaction of these needs. The satisfaction (or alternatively, thwarting) of these needs is thought to have important implications for internalisation and the autonomous enactment of behaviour (Gagné & Deci, 2005).

**Possible Boundary Conditions**

Despite the apparent support for the communion over agency principle, it is worth considering the boundary conditions for this effect. Researchers have found that the communion over agency effect was reversed in a context in which individuals’ outcomes were highly reliant on others’ agency (i.e., efficiency-oriented businesses in which employees benefit from the success of their supervisor) relative to a context in which outcomes were less reliant on others (e.g., bureaucratic organizations where employee benefits are more dependent on factors such as length of employment and qualifications; Wojciszke & Abele, 2008). Additional work has shown that consumers may favor making purchases from profit-based organizations rather than non-profits because of the perception of greater competence at for-profits (Aaker, Vohs, & Mogilner, 2010). Furthermore, more communal descriptions of potential hires have been found to negatively impact hiring decisions in academia (Madera, Hebl, & Martin, 2009). Consistent with conditions discussed by Wojciszke and Abele (2008), these results involved relationships where there was a reliance on others’ agency (that is, a consumer’s reliance on the competence of the company, or an employers’ reliance on the competence of their potential hires), providing further support for this as a possible boundary condition.
Of relevance for the exercise domain, there are many exercise settings in which one’s success is (at least partly) dependent on others. One example is an exercise class, where potential outcomes (e.g., fitness improvements, weight loss, and health benefits) may be linked to the effectiveness of the exercise class instructor (e.g., ability to motivate class members and implement an effective program). Thus, it is possible that the communion over agency effect may be muted, or even negated altogether, when considering persuasive messages for a setting (e.g., an exercise class) in which personal outcomes are dependent on others. Similarly, it is possible that the features of a situation, such as the situation being more of an achievement context (e.g., elite athletic competition) or interpersonal context (e.g., getting to know new teammates) may impact upon the relative accessibility of agency and communion, and thus the strength of the primacy effect (Fiske et al., 2007).

An additional boundary condition for the communion over agency principle may be observed when individuals are oriented to focus on agency over communion. For example, individuals who are oriented to be more aware of the personal importance of agency to the self may be more likely to respond favorably to agentic content relative to communal content. Support for this proposition is found in literature that has examined the effectiveness of message tailoring, in which message persuasiveness is thought to be increased through the use of messages that are personally relevant to the recipient. Meta-analytic evidence supports the use of message tailoring as an effective technique in health communication (Noar, Benac, & Harris, 2007). For example, researchers have found that physical activity may be enhanced by using persuasive messages that are tailored to individuals’ stage of motivational readiness to be active (Marcus, Bock, Pinto, Forsyth, Roberts, & Traficante, 1998), and there is evidence that messages that present a strong argument for exercise are more effective when they are tailored to be congruent with individuals’ chronic time-orientation (i.e., sensitivity to shorter-term or longer-term outcomes; Dimmock et al., 2013). For the purpose of this study, therefore, we included information that was designed to orient individuals to consider either the importance of agency or communion to the self immediately prior
Agentic and communal exercise messages
to receiving an advertising message (which, as discussed above, emphasized either agentic or communal aspects of an exercise class).

Importantly, there is some evidence to indicate that gender differences may be relevant to the study of agency and communion. The view that there may be some conceptual overlap between agency and traditional masculine gender roles, and a corresponding overlap between communion and traditional feminine gender roles, stretches back to Bakan’s (1966) conceptualization of agency and communion. More recent empirical work does reveal a potential influence of gender on communion (but not agency), such that women reported being more communal in their interpersonal interactions than men (Moskowitz, Suh, & Desaulniers, 1994). In light of the potential influence of gender, especially with regards to communion, this variable was included as a factor of interest in our analyses.

The Possible Influence of Agentic and Communal Messages on Attitudes, Self-efficacy Beliefs, and Intention

We sought to investigate the effects of agentic and communal advertising messages on several theoretically and practically meaningful variables. These variables included affective and instrumental attitudes toward the exercise class, exercise task self-efficacy beliefs for the class (i.e., participants’ confidence in their task-related ability regarding the class), social self-efficacy beliefs for the class (i.e., participants’ confidence in their ability to foster positive interpersonal relationships), and participants’ intention to attend the class. As we outline below, there is some reason to suggest that communal messages can be more effective than agentic messages in eliciting positive changes in these constructs.

Attitudes have long been considered central outcomes within persuasive messaging studies (cf. Petty & Wegener, 1998), and attitudinal judgments are recognized as important predictors of intentions and behavior in prominent behavior change models (cf. Ajzen, 1985, 1991; Becker, 1974). In relation to agentic and communal exercise messages, two points lend support to the communion over agency principle (Abele & Wojciszke, 2014). First, communal benefits of exercise
classes (e.g., the formation and maintenance of interpersonal relationships) may serve to fulfil (at least in part) individuals’ need to belong. This need is thought to reflect a powerful and fundamental form of human motivation (Baumeister & Leary, 1995; Deci & Ryan, 2000) and may therefore be important in shaping positive attitude development. Second, exercise advertising tends to emphasize outcomes such as being in shape or achieving physical health benefits (Dishman, 2001). However, work performed in the United Kingdom and United States indicates that over 90% of individuals already know that physical activity is important for these types of agentic outcomes (Martin, Morrow, Allen, Jackson, & Dunn, 2000; O’Donovan & Shave, 2007). Agreement with a message tends to first increase, then decrease with repeated exposure (Cacioppo & Petty 1979), suggesting that agentic messages may not be as helpful as communal messages in crafting positive exercise attitudes. Given that the consequences of a given behavior underpin individuals’ attitudes towards the behavior (Ajzen, 1985), it may be that highlighting the communal benefits of an exercise class draws individuals’ attention to (relatively more) novel and favorable behavioral consequences that extend beyond the agentic benefits they may also (or already) anticipate.

Similar to attitudes, individuals’ self-efficacy beliefs are theorized to be important predictors of intention and behavior (cf. Bandura, 1977, 1997; Witte, 1992). In relation to the impact of agentic and communal messages on self-efficacy beliefs, it should be noted that the development of self-efficacy is facilitated by learning environments (e.g., exercise classes) in which competitive social comparison is deemphasized and individuals are instead supported by others to make personal progress (Bandura, 1993). Drawing from this notion, an exercise class that is focused on communion, such that the class members are helpful and supportive, may facilitate greater self-efficacy judgements relative to a class focused on advancing the self and separating from others, which is more aligned with agency (Abele & Wojciszke, 2014). We included two types of self-efficacy beliefs in the present study because of the possibility that messages emphasizing agentic content may be more likely to impact exercise task self-efficacy beliefs, whereas messages that emphasize communal content may be more likely to impact social self-efficacy beliefs.
Conceptually, exercise task self-efficacy reflects conceptions of one’s agentic competency in exercise (e.g., perceived capability to perform activities and skills taught in the class), whereas social self-efficacy more closely reflects conceptions of communal competency (e.g., making friends and maintaining relationships).

In addition to attitudes and self-efficacy beliefs, we also included an assessment of individuals’ intention to attend the exercise class. From the perspective of behavior change, it is important to influence intention as well as attitudes and self-efficacy beliefs because intention is theorized to be a more proximal predictor of behavior than these constructs (Ajzen, 1985, 1991).

Building from our expectations that a communal message, relative to an agentic message, would produce more favorable attitudes and self-efficacy beliefs, we also expected a similar communion over agency effect to be observed for intention to attend the class. However, according to theory of planned behavior (Ajzen, 1991) principles—that attitudinal and efficacy (vis-à-vis perceived behavioral control) perceptions may, theoretically speaking, shape intention formation—we considered two potential ways through which message content may shape class-related intentions.

First, we sought to explore evidence for a direct effect of communal/agency messages on intentions (in line with the supporting material outlined above) by testing for between-condition differences on participants’ intentions. In addition, and consistent with theory of planned behavior tenets regarding the antecedents of intention formation, we also sought to examine whether emergent message effects upon attitude and/or self-efficacy outcomes may support an indirect effect of message content on intentions (i.e., a mediated effect via attitude and/or efficacy-related effects).

In sum, we developed exercise messages, emphasizing either agency or communion, that were ostensibly presented as advertisements for an instructor-led exercise class as a test of the boundary conditions of the established communion over agency principle. We sought to test the principle that messages focused on communal content would be received more positively (i.e., would elicit more positive exercise class attitudes, greater exercise task self-efficacy and social self-efficacy perceptions for the class, and directly or indirectly, a stronger intention to attend the class)
relative to messages focused on agentic content. We examined two potential boundary conditions for this effect by (a) examining a setting in which personal outcomes were dependent on another (i.e., the exercise class instructor), and (b) orienting individuals to the importance of agency (or communion) prior to receiving the message.

Method

Participants and Procedure

In order to determine an appropriate sample size for this study, a mean effect size was calculated from two studies reported by Infanger and Sczesny (2015) regarding the effect of agency and communal endorser attributes on individuals’ attitudes toward an advertisement. With power (1-β) set at 0.80 and α=0.05, one-tailed, we found that a sample of 120 participants should be sufficient to detect an effect in the present study. This power analysis was conducted using GPower version 3.1.9.2 (see Faul, Erdfelder, Lang, & Buchner, 2007). After ethical approval was granted by the lead authors’ institution, a total of 194 individuals provided responses for the study. Of the 194 responses recorded, 92 were provided by male participants and 102 were provided by female participants. The age range of these participants was 18 to 79 years of age, with the mean age being 44.79 years (SD = 16.24). A minority of participants (i.e., n = 52) indicated that they were currently a member of a gym or recreation center, or currently participating in organized sport (i.e., n = 39). On average, participants indicated that they participated in 2.36 (SD = 3.04) bouts of strenuous activity per week, 3.15 (SD = 3.68) bouts of moderate intensity activity per week, and 5.35 (SD = 7.52) bouts of mild intensity activity per week.

Participants were recruited from a pool of prospective participants maintained by the Qualtrics online survey/panel platform. Individuals are able to sign up to be part of this pool after they provide informed consent to be contacted by Qualtrics about study participation opportunities. Potential participants who met study requirements (i.e., Australian citizens aged 18 or over) were sent a link by Qualtrics to access the survey. This link re-directed participants to the study information and consent web pages. The information included an overview of the nature of the
questions to be completed as part of the study (e.g., exercise attitudes and behavior) but presented an intentionally vague description of the study purpose (i.e., “to examine your perceptions about the content of an exercise-related message”). The description was vague so as to avoid providing information that may alert participants to the fictitious nature of the exercise messages.

Having provided informed consent, all participants were automatically redirected to an initial set of items used to gather background and baseline information (see Measures section) about the sample. Upon completion of these items, and using computerized random assignment, participants were then assigned to one of two writing task conditions that were used in an attempt to induce an orientation toward either agency or communion (Woike, Lavezzary, & Barsky, 2001, study 3). Participants assigned to receive the agency prime ($n = 96$) were asked to “Think of a single event in your life that involved achieving something great and/or feeling powerful and exuberant over an accomplishment. You may also have felt as though you stood apart from others or were recognized with the distinction of being the best.” Participants assigned to receive the communal prime ($n = 98$) were asked to “Think of a single event in your life that involved being close to others and/or feeling part of a group in a way that was very satisfying. You may also have felt as though you were interrelated with others or that they had similar experiences that helped to form a bond between you.” For both prime conditions, the instructions specified that participants should take a few minutes to try to re-experience the event as vividly as possible, and then to take approximately 10 minutes to describe the event in detail, including how the event came about and how they felt during the event.

Following the writing task, computerized random assignment was again used to assign participants to an agency or communion advertising message condition, such that participants were placed in an ‘agency prime, agency advert’, ‘agency prime, communal advert’, ‘communal prime, communal advert’, or ‘communal prime, agency advert’ condition. The advertisements were ostensibly presented as promotional material for a new exercise class referred to as ‘BASE-45’. Participants were told that the company ‘Base Movement’ had developed the class and had engaged
the researchers to solicit feedback on the class. The class was described as “a multi-activity workout
class” and “a comprehensive, total-body workout session that incorporates the most effective
elements from endurance, strength, and flexibility training programs.”

In actuality, the class and company were fictitious and were based on a previous exercise
class messaging study (Dimmock et al., 2013). The message content used by Dimmock et al. (2013)
was modified for the purposes of the current study by emphasizing either agentic (i.e., agentic
advert) or communal (i.e., communal advert) aspects of the fictitious exercise class. For example,
the agentic message highlighted that the exercise class was “effective for achieving fitness goals”
and was focused on exercise excellence, success, and was for people who want to “aim high and
reach their fitness potential”. In contrast, the communal message highlighted that the class was
effective in “creating genuine connections between all group members”, was characterized by a
welcoming atmosphere, close-knit groups, and was for people who want to “develop supportive
relationships and strong bonds with others”. These written descriptions (see Supplementary
Material, S1) were supplemented with visuals that presented individuals engaged in competitive
exercise tasks (i.e., agency advert; e.g., using rowing ergometers) or in a group social setting (i.e.,
communal advert; e.g., embracing with and applauding group members). Full-colour versions of the
advertisements with images are available on request from the first author. Participants were asked to
consider the messages thoroughly and were notified that it was critical that they give the messages
their full attention and read closely through the advertisements a few times.

Following the presentation of the advertisement message, participants responded to items
designed to check their perceptions of the message manipulation (i.e., that it was credible,
convincing, and processed deeply) and then reported their perceptions on the dependent measures
(i.e., exercise class attitudes, exercise task self-efficacy, social self-efficacy, and intention to attend
the exercise class). As the message focused on a specific exercise class, and not exercise in general,
these dependent measures also focused on participants’ attitudes to, self-efficacy beliefs for, and
intention to attend, the specific class. After completing these measures, participants were
automatically redirected to a webpage that presented debrief information, including describing the
fictitious nature of the advertisement message, the true purpose of the study, and researcher contact
information.

Measures

Background and baseline measures.

Demographics and exercise participation. Participants were asked to report background
information about themselves (i.e., gender, age, membership of a recreation center or gym, and
involvement in organized sport) and their exercise behavior. Consistent with previous exercise
messaging studies (e.g., Dimmock et al., 2013), the Godin Leisure-Time Exercise Questionnaire
(Godin & Shepard, 1985) was used to assess voluntary exercise levels. Participants were asked to
indicate the number of times per week, on average, they did strenuous, moderate, and mild exercise,
but were asked to only include bouts lasting longer than 15 minutes, bouts performed in their free
time, and bouts performed outside of structured sport commitments. A total activity score was
subsequently calculated using the formula presented by Godin and Shepard (1985).

Typical exercise attitudes. Guided by recommendations from Ajzen (2006), we employed
six items that had previously been used in exercise messaging work to assess instrumental (three
items; e.g., valuable-worthless) and affective (three items; e.g., enjoyable-unenjoyable) exercise
attitudes (Dimmock et al., 2013). Participants were presented with a 7-point bipolar scale, and asked
to respond to the stem, “For me, doing exercise is...”. Cronbach’s alphas for scores derived from
the instrumental and affective scales (and all other relevant measures) for this study are presented in
Table 1.

Exercise motivation. Participants’ typical exercise motivation was assessed using the 19-
item Behavioural Regulation in Exercise Questionnaire-2 (Markland & Tobin, 2004). Participants
were asked to consider their answers with respect to structured or planned exercise (and not
organized sport). The instrument consists of five subscales that assess amotivation (4 items, e.g., “I
don’t see why I should have to exercise”), external regulation (4 items, e.g., “I exercise because
other people say I should”), introjected regulation (3 items, e.g., “I feel guilty when I don’t
exercise”), identified regulation (4 items, e.g., “I value the benefits of exercise”), and intrinsic
motivation (4 items, e.g., “I exercise because it’s fun”). The response scale included anchors at 0
(not true for me), 2 (somewhat true for me), and 4 (very true for me). Markland and Tobin (2004)
reported support for the internal consistency and factorial validity of scores derived from the
instrument.

Responses to manipulations.

Writing manipulation. Responses were removed on the basis of participants providing
blank or nonsensical (i.e., gibberish) responses to the writing task, or indicating that they could not
recall a type of event that was consistent with the instructions. Of the 194 responses collected, a
total of 44 responses were excluded from the analyses. As such, we proceeded with a total of 150
responses. Analyses, presented as Supplementary Material (S2) indicated that the demographic
profile (gender, age, exercise behaviour) was similar between the 150 included participants and 44
excluded participants. Manipulation check data supporting the effectiveness of the writing task
manipulation on agency and communion outcome measures are also presented as Supplementary
Material (S3).

Message manipulation. Similar to previous physical activity messaging work (e.g., Jackson,
Compton, Whiddett, Anthony, & Dimmock, 2015), we assessed participants’ perceptions of
message credibility (i.e., “How credible did you find the information in the BASE-45
advertisement?”) and the extent to which the material was perceived as convincing (“How
convincing did you find the information in the BASE-45 advertisement?”). We also included an
additional item focused on the extent to which participants indicated that they processed the
material (i.e., “Please report how deeply you thought about the information in the BASE-45
advert”). Response scales for items ranged from 1 (not at all credible/convincing/deeply) to 9 (very
credible/convincing/deeply). Manipulation check data supporting the effectiveness of the message
advert manipulation on agency and communion outcome measures are also presented as Supplementary Material (S3).

Dependent variables.

**Exercise task self-efficacy for the class.** Exercise task self-efficacy was assessed using Jackson, Whipp, Chua, Pengelley, and Beauchamp’s (2012) instrument that was modified to suit the focal context (i.e., items referred to the BASE-45 class rather than a physical education class). Participants were asked to estimate their confidence in their ability during the BASE-45 class and responded to nine items (e.g., “Perform all the skills you are taught in BASE-45”). The response scale ranged from 1 (no confidence at all) to 5 (complete confidence). Jackson et al. found that scores derived from the scale positively aligned with important physical activity outcomes (i.e., enjoyment, effort, physical activity levels).

**Social self-efficacy for the class.** Similar to exercise task self-efficacy, Zullig, Teoli, and Valoiss’ (2011) social self-efficacy instrument was contextualized so that participants were asked about their social self-efficacy beliefs with respect to the BASE-45 class. The instrument has previously been employed in physical activity settings by Howle, Dimmock, Whipp, and Jackson (2015). Using an item stem and response scale that was consistent with the exercise task self-efficacy assessment, participants were asked to respond to eight items regarding their confidence in their ability to achieve social (and not task-related) outcomes in the class (e.g., “Become friends with your BASE-45 classmates”). Howle, Dimmock et al. (2015) reported reliability values (i.e., composite reliability estimates) that support the use of the measure and found that social self-efficacy positively predicted motivation to present the self in a way which would have others favorably evaluate one’s interpersonal qualities.

**Attitudes toward the exercise class and intentions to attend the class.** Class attitudes were assessed using the same items and response scale as that described for the baseline exercise attitudes instrument. The instructions and item stem were modified, however, so as to refer to the BASE-45 class specifically rather than exercise in general. Finally, a single item (Dimmock et al.,
Agentic and communal exercise messages was used to assess intention to attend the BASE-45 class, (i.e., “How likely would you be to take part in BASE-45 in the next 6 months”), with participants asked to answer on a scale ranging from 1 (I would not) to 4 (I would definitely).

Results

Preliminary Analyses

The survey was designed to include a computerized prompt that requested participants to complete all questionnaire items. As a result, missing data were negligible (i.e., a single non-response to one item assessing how deeply the message was processed). Skewness and kurtosis values for questionnaire items generally fell between the range of -1 to 1, with the largest deviations from this range being for a baseline exercise attitudes item that had values of -1.34 for skewness and 1.62 for kurtosis. As such, data imputation and variable transformation was not necessary. The sample of 150 participants \(n_{\text{male}} = 71, n_{\text{female}} = 79\) who were retained for analyses (see ‘Writing manipulation’ sub-section within the Measures) were split across the four conditions as follows: ‘agency prime, agency advert’ \((n = 40)\), ‘agency prime, communal advert’ \((n = 35)\), ‘communal prime, communal advert’ \((n = 43)\), and ‘communal prime, agentic advert’ \((n = 32)\).

Average scores for the three manipulation perception variables were above the midpoint of the nine-point scales, but still fell within the mid-range of these scales. This indicated that the advertising messages were perceived as relatively credible \((M = 5.59, SD = 1.89)\), convincing \((M = 5.22, SD = 2.18)\), and were reported as being relatively deeply processed \((M = 5.52, SD = 1.88)\). We used one-way ANOVA to investigate between-condition differences for these manipulation scores. Non-significant differences were observed for the credibility, \(F(3, 146) = 0.66, p = .58, \eta^2_p = .01\), convincingness, \(F(3, 146) = 0.49, p = .69, \eta^2_p = .01\), and processing checks, \(F(3, 145) = 2.25, p = .09, \eta^2_p = .04\), indicating that scores on these variables did not vary as a function of advert type.

A chi-square test of association was used to investigate whether there was an association between gender and condition. This test indicated that gender was independent of condition, \(\chi^2(3) = 1.08, p = .78\). Two-way (i.e., advert condition x prime condition) multivariate ANOVA was used to
investigate possible differences in terms of age or exercise behavior according to condition. We observed no significant multivariate main effect for advert condition, $F(2, 145) = 1.09, p = .34, \eta^2_p = .02, \lambda = .98$, or prime condition, $F(2, 145) = 0.20, p = .82, \eta^2_p < .01, \lambda = .99$, alongside no advert-by-prime interaction, $F(2, 145) = 0.70, p = .93, \eta^2_p < .01, \lambda = .99$. Two-way (i.e., advert condition x prime condition) multivariate ANOVA was also used to investigate possible between-condition baseline differences in (a) the five different exercise motivation regulations, and (b) typical instrumental and affective exercise attitudes. Results for motivational regulations revealed no significant multivariate main effect for advert condition, $F(5, 142) = 0.68, p = .91, \eta^2_p < .01, \lambda = .99$, or prime condition, $F(5, 142) = 0.29, p = .92, \eta^2_p < .01, \lambda = .99$, alongside no advert-by-prime interaction, $F(5, 142) = 1.06, p = .39, \eta^2_p = .04, \lambda = .96$. Results for attitudes indicated that there was no significant multivariate main effect for advert condition, $F(2, 145) = 0.10, p = .91, \eta^2_p < .01, \lambda = .99$, or prime condition, $F(2, 145) = 1.95, p = .15, \eta^2_p = .03, \lambda = .97$, alongside no advert-by-prime interaction, $F(2, 145) = 2.10, p = .13, \eta^2_p = .03, \lambda = .97$. These analyses demonstrated that there were no condition-related differences on relevant baseline variables.

**Hypothesis Testing**

Means for all dependent variables, by study condition, are presented in Table 1. We used three-way ANOVA to inferentially examine the effect of advert condition, prime condition, and gender on each dependent variable. In doing so, and in light of several significant correlations between ‘baseline’ and ‘dependent’ variables (see Table 2), we entered all baseline variables (i.e., exercise participation levels, typical exercise attitudes, exercise motivational regulations) as covariates in these analyses. Significant effects were observed for the task self-efficacy and affective attitude variables, but no main or interaction effects emerged for social self-efficacy, instrumental attitudes, or behavioral intention. For exercise task self-efficacy, there was a significant effect for advert, $F(1, 134) = 5.41, p = .02, \eta^2_p = .04$, and gender, $F(1, 134) = 5.75, p = .02, \eta^2_p = .04$, but not prime, $F(1, 134) = 0.02, p = .97, \eta^2_p < .001$. No significant two-way (i.e., prime-by-advert, advert-by-gender, prime-by-gender) or three-way (i.e., prime-by-advert-by-
Agentic and communal exercise messages

gender) interactions were observed. The significant effects for advert (d = 0.39) and gender (d = 0.24) revealed that participants in the communal advert condition (relative to the agentic advert condition), and males (relative to females), reported greater exercise task self-efficacy. For affective attitudes toward the exercise class, there was a significant effect for advert condition, $F(1, 134) = 4.80, p = .03, \eta^2_p = .04$, but not for prime condition, $F(1, 134) = 1.84, p = .18, \eta^2_p = .01$, or gender, $F(1, 134) = 0.79, p = .38, \eta^2_p = .01$. There were also no significant two- or three-way interactions. These results revealed that participants in the communal advert condition (d = .35) reported more favorable affective attitudes than those in the agentic advert condition.

Mediation Analysis

In our mediation analysis, we considered the possibility that the advert condition effects we observed for task self-efficacy and affective attitudes toward the class may support an indirect (i.e., mediated) effect of advert condition on participants’ intention to attend the class. In addition to the conceptual argument that we presented earlier for this test, the inclusion of this mediation analysis was supported by the strong, positive correlations that we observed for task self-efficacy and affective attitudes toward the class in relation to participants’ attendance intentions (see Table 2). We utilized Hayes’ (2013) PROCESS Version 2.15 macro for SPSS with bootstrapping for multiple mediation. We entered advert condition (coded 1 for those who received the communal message and 0 for those who received the agentic message) as the independent variable (IV), task self-efficacy and affective attitudes toward the class as proposed mediators (M), and intentions to attend the class as the dependent variable (DV). In light of the positive correlations that social self-efficacy and instrumental attitudes toward the class (i.e., the other dependent variables in our primary analysis) displayed in relation to intentions (see Table 2), we also included these two variables as covariates (of intentions) in the bootstrapped analysis.

Despite displaying nonsignificant message effects in our primary analysis, we did (for the sake of clarity) also estimate a mediation model in which social self-efficacy and instrumental attitudes were considered as potential mediator variables. This model confirmed that there were no indirect effects from advert condition to intentions through social self-efficacy or instrumental attitudes.
In line with the condition effects reported above, analyses of IV → M pathways revealed message effects for task self-efficacy (estimate = .38, SE = .16, t = 2.42, p = .017, 95% confidence interval .07, .69) and affective attitudes toward the exercise class (estimate = .58, SE = .27, t = 2.14, p = .034, 95% confidence interval .04, 1.12). In terms of M → DV pathways, we observed an effect for task self-efficacy in relation to attendance intentions (estimate = .33, SE = .11, t = 2.98, p = .003, 95% confidence interval .11, .56), such that stronger task self-efficacy perceptions predicted stronger intentions to attend the class. The confidence interval associated with the bootstrapped indirect effect from advert condition to intentions through task self-efficacy (estimate = .13, SE = .07, 95% bias corrected confidence interval .03, .32) did not cross zero, and thus indicated that although there was no direct message effect on participants’ intentions, there was evidence to support an indirect association (via heightened task self-efficacy).

The M → DV pathway between affective attitudes toward the class and intentions to attend was not significant (estimate = .14, SE = .08, t = 1.61, p = .11, 95% confidence interval -.03, .30). However, the confidence interval associated with the indirect effect from advert condition to intentions through affective attitude toward the class approached, but did not cross, zero (estimate = .08, SE = .06, 95% bias corrected confidence interval .001, .26), demonstrating tentative support another indirect association between advert condition and intentions. In sum, these analyses indicated that, relative to those who received an agentic advert message, the communal advert message elicited greater task self-efficacy and affective attitudes toward the class, which were in turn associated with stronger intentions to attend the class.

**Discussion**

The aim of the present study was to test the prediction that an exercise advertisement would be more effective for stimulating individuals’ exercise-related perceptions when the message content emphasized communal rather than agentic benefits of exercise. Although there is theoretical and empirical support for an advantage of communal-focused (relative to agentic-focused) messaging (Abele & Wojciszke, 2014), we sought to examine whether (a) the exercise context, and
Agentic and communal exercise messages

(b) an experimentally induced prime (i.e., the agency or communion writing task) would serve to suppress or extinguish this effect with respect to differences observed for the outcome variables of task and social self-efficacy beliefs, exercise class attitudes, and intention to participate in the class.

Our findings revealed that individuals who were exposed to messages that advertised the communal benefits of an exercise class reported significantly greater exercise task self-efficacy for that class and significantly more positive affective attitudes toward it relative to individuals exposed to an agentic message (and we observed that these effects were not qualified by participant gender).

This pattern of results was similar for the other dependent variables examined (i.e., social self-efficacy, instrumental attitudes, and reported likelihood of attending the class), but the effect was not statistically significant in these instances. From this pattern of findings, we can reasonably conclude there was partial support for the communion over agency effect. Although the effect sizes we observed for these significant differences were small or small-to-moderate, several other lines of evidence provide some confidence in the communion over agency effect. First, the findings could not be attributed to baseline between-group differences on the theoretically important variables of exercise motivational regulations, attitudes, or exercise behavior. Second, there were no significant between-group imbalances regarding gender or age. Third, and although observed using a distinct sample from the main study, results of the ancillary analyses indicate that the writing tasks were effective in manipulating participants’ sense of agency and communion (see Supplementary Material, S3).

Given that advertising in the exercise industry is often focused on emphasizing the agentic benefits (e.g., becoming physically fitter and healthier) of exercise (Dishman, 2001), it is notable that communal-based exercise advertising may provide a relatively more positive effect on important psychological correlates of exercise involvement, such as exercise task self-efficacy and affective attitudes. In addition, given the proximal role that intentions are theorized to play in driving behavior (Ajzen, 1991), it was noteworthy that the communal message was also indirectly associated with stronger intentions, via the effects observed on task self-efficacy and affective
attitudinal judgments. The effect of communal messages on physical activity behavior is yet to be assessed, but the present results indicate that a positive effect is plausible. In light of these findings, it appears to make sense for communal information to (at the very least) be included as part of advertising messages that aim to influence predictors of exercise behavior (i.e., exercise task self-efficacy, affective attitudes) when the exercise takes place in interpersonal settings. With that in mind, it is worth noting that some previous or current health campaigns, such as “Go4Life” (National Institute on Aging, n.d.), do include communal content. Advertisers of exercise may be able to draw from such examples of health messaging to craft messages that include communal information.

With this being said, it is worth considering why we did not observe a significant difference between agentic and communal advert conditions for instrumental attitudes, social self-efficacy, and—in terms of a direct effect, at least—individuals’ intentions of attending the exercise class in the future. In relation to instrumental attitudes, it may be that generalized positive attitudes toward the usefulness of exercise classes shaped participants’ responses. That is, participants may have held pre-existing views that exercise classes are valuable (e.g., can promote positive health and weight loss) and then generalized this view to the classes described in the advertisements, regardless of whether agency or communion was emphasized. In support of this view, evidence indicates that the majority of individuals in Western societies may already be aware of the physical benefits of exercise (O’Donovan & Shave, 2007; Martin et al., 2000). In our sample, baseline scores indicated that individuals held generally positive (i.e., above the scale mid-point) instrumental attitudes for exercise (see Table 1). Still, the lack of a significant difference for instrumental attitudes is an important issue given that these attitudes (along with affective attitudes) may distinguish between individuals who do not intend to exercise, intend to exercise but fail to follow through, and intend to exercise and follow through on this intention (Rhodes, Courneya, & Jones, 2003).
We also observed no significant differences between advert conditions for social self-efficacy. This finding is particularly interesting given the differences between advert content in describing the interpersonal conditions of the classes. For example, the communal message described a class that was characterized by a hospitable, welcoming, and interpersonally warm social environment. In light of the potential for the interpersonal environment to impact upon individuals’ self-efficacy beliefs (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001), we had expected that the communal message would promote greater social self-efficacy beliefs than the agentic message. In interpreting this finding, it is important to note the absence of baseline information relating to participants’ social self-efficacy beliefs or alternate relevant interpersonal constructs (e.g., social apprehensions or anxiety). In a similar way that we checked for group differences relating to baseline exercise attitudes and motivation, a check on these types of interpersonal variables would be worthwhile so as to rule out the possibility of baseline differences between groups influencing the findings.

Advert condition also did not directly influence self-reported likelihood of behavior (i.e., attending the exercise class). This nonsignificant finding is noteworthy insofar as the end-purpose of any persuasive physical activity message is to create behavior change, and bolstering intentions is one method through which behavior change may be stimulated. Reflecting on the nonsignificant direct effect, it is important to qualify that our mediation analysis did indicate that an intention-enhancing message effect may have occurred indirectly, via heightened exercise task self-efficacy and affective attitudes. Moreover, from a design perspective, it is also possible that the nature of the data collection may have influenced responses and contributed to the lack of a direct effect (i.e., the study was completed online and no specific class location was provided). The advertising messages described BASE-45 as an American program that was soon to be introduced in Australia, and participants may have been unsure as to whether the classes would be readily available to them. A useful addition to future work would be to specify that the exercise class would be held at a location
accessible by participants, so as to limit any possibility of participants not intending to attend the
class because of accessibility concerns.

In addition to randomly assigning participants to read an agentic or communal advertising
message, we used random assignment in an attempt to orient individuals to either an agentic or
communal focus prior to receiving this message. By asking individuals to think and write about an
agentic or communal life event, we sought to highlight the personal relevance of agency or
communion, respectively, to the self. The results of this study add to those of Woike et al. (2001),
indicating that a sufficiently strong agentic (or communal) focus was likely to have been induced in
participants. In future work, researchers could consider additional ways to manipulate and/or assess
individuals’ agentic and communal orientation if required. For example, researchers could use
manipulations and assessments focused on agentic and communal goals (Sheldon & Cooper, 2008)
or stressors (Smith, Gallo, Goble, Ngu, & Stark, 1998), as well as exercise-specific goals (Sebire,
Standage, & Vansteenkiste, 2008) or motives (Ingledew & Markland, 2008). Additionally, the
inclusion of a measure of expected class difficulty would be useful so as to control for any potential
effects of these expectations on the outcome variables. No measure of these expectations was
included in the present work, so it is unclear whether expectations for difficulty were different
between the agentic advert and communal advert groups.

Irrespective of these considerations, the present study does provide novel insight into the
psychological implications of agentic and communal content on exercise message recipients.
Although this study is not without limitations, as discussed above, we hope that it provides a
starting point for researchers to continue to explore agentic and communal exercise messages. In
addition to future work that tests whether the effects observed in the present study can be replicated
(ideally in a larger and distinct sample), researchers could also build on and extend the present
findings. For example, further insight may be gained by creating messages in which the agentic or
communal focus is stronger and more explicitly highlighted. As one way of doing so, a communal
message could describe a class where the purpose is creating a positive social atmosphere, with
fitness improvements being of lesser importance. Alternatively, or in addition, a further condition could be added such that communal and agentic benefits are presented together. It would then be possible to distinguish whether presenting agentic and communal information in combination is more influential than presenting only communal (or only agentic) messages.

It would also be interesting to extend this work to consider whether agentic and communal messages—such as those used in this investigation—have a differential effect within the context of broader advertising campaigns (e.g., community-wide messages encouraging individuals to be more active) rather than just an isolated exercise class. In such studies, it would be valuable to monitor the behavioral consequences (i.e., on physical activity levels) of the different messages, particularly over the longer-term. Further insight could also be provided by considering the effect of the messages on variables beyond those examined in the present study. For example, drawing from SDT (Ryan & Deci, 2000)—in which it is outlined that individuals’ motivational regulations rely on the fulfilment of their needs for autonomy (i.e., a sense of choice and volition), competence (i.e., belief in one’s capabilities), and relatedness (i.e., supportive interpersonal connections)—researchers could examine whether agentic and communal messages influence perceptions of need support and satisfaction within the classes. Given the conceptual similarities between competence and agency, and relatedness and communion, we might expect that an agentic message may have greater influence on individuals’ competence perceptions and that a communal message may have greater influence on relatedness perceptions. Future work could also extend the findings observed in the present work by comparing the effects of agentic and communal messages relative to a control (i.e., neither agentic nor communal) message. It is impossible to know from the present study whether the active “ingredients” in these messages offer any differential advantage (or perhaps disadvantage) over comparable “ingredient-inert” messages in promoting physical activity or theory-based predictors of physical activity (such as self-efficacy beliefs, attitudes, and intentions).

From a theoretical perspective, it would be interesting to examine the effect of agentic and communal messages using a manipulation based on a description of the class instructor, rather than
Agentic and communal exercise messages

the class itself. Abele and Wojciszke (2014) describe the communion over agency principle within
the context of interpersonal judgements. For exercise class advertising, perhaps we would have
observed stronger effects if our manipulation had focused on the instructor (or other class
members), rather than the class as a whole (also see Infanger & Sczesny, 2015, for relevant
empirical advertising work on this issue). One possibility would be to use fictitious interviews,
perhaps presented using an audiovisual medium, to elucidate perceptions of exercise class
instructors as being more focused on achievement and success (e.g., fitness improvements) or
interpersonal relationships (e.g., providing support and encouragement). Moreover, it would be
interesting to continue to test the limits (i.e., boundary conditions) of the communion over agency
effect. Abele and Wojciszke (2014) discussed some such conditions, such as the extent of one’s
dependence on the evaluation target, but it would be useful to examine this in the context of
exercise and persuasive messaging, given that this is a context which received limited attention
from agency and communion theorists.

Overall, the present study represents the first attempt to investigate the effects of persuasive
exercise messages based on the constructs of agency and communion. Our results provide partial
support for the communion over agency principle, with direct message effects on task self-efficacy
and affective attitudes toward the class (albeit only small-to-moderate in magnitude), and indirect
effects on intentions to attend the class. The findings indicate that messages emphasizing the
communal benefits of an exercise class may be just as, if not slightly more, effective than agentic
messages in shaping positive evaluations about exercise. In addition to extending the communion
over agency principle to a previously unexplored context, we hope that the present study provides
some impetus for researchers to explore the effects of exercise messages based on agency and
communion and to distinguish the relative benefits of these messages.
References


Sabiston, C. M., & Chandler, K. (2009). Effects of fitness advertising on weight and body shape dissatisfaction, social physique anxiety, and exercise motives in a sample of healthy-weight
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### Table 1. Means and standard deviations for study variables, by condition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Agentic prime, agentic advert</th>
<th>Agentic prime, communal advert</th>
<th>Communal prime, agentic advert</th>
<th>Communal prime, communal advert</th>
<th>Alpha</th>
</tr>
</thead>
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<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td><strong>Baseline (exercise) variables</strong></td>
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<td>1.08</td>
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<td>Intention of attending class</td>
<td>1.98</td>
<td>1.00</td>
<td>1.72</td>
<td>0.81</td>
<td>2.06</td>
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</table>

*Note:* Alpha refers to Cronbach’s alpha. Attitudes scored on a scale ranging from 1 to 7, motivational regulations scored on a scale ranging from 0 to 4, efficacy beliefs scored on a scale ranging from 1 to 5, Intention of attending class scored on a scale ranging from 1 to 4. Higher scores indicate more positive/greater attitudes/motivation/self-efficacy beliefs/intention.
Table 2. Aggregate-level zero-order correlations for all variables across the entire sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>2</th>
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<th>5</th>
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<th>10</th>
<th>11</th>
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<td>1. Exercise participation</td>
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<td>-.04</td>
<td>.03</td>
<td>.12</td>
<td>.16*</td>
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<td>.13</td>
<td>.13</td>
<td>.20*</td>
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<td>2. Instr. att. (exercise)</td>
<td>-.77***</td>
<td>-.48***</td>
<td>-.09</td>
<td>.23**</td>
<td>.65***</td>
<td>.66***</td>
<td>.58***</td>
<td>.56***</td>
<td>.51***</td>
<td>.30***</td>
<td>.26**</td>
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<tr>
<td>3. Aff. att. (exercise)</td>
<td>-.40***</td>
<td>-.10</td>
<td>.16</td>
<td>.55***</td>
<td>.69***</td>
<td>.50***</td>
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<td>.47***</td>
<td>.24**</td>
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<td>4. Amotivation</td>
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<td>.03</td>
<td>-.48***</td>
<td>-.46***</td>
<td>-.30***</td>
<td>-.31***</td>
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<td>-.23**</td>
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<td>5. External regulation</td>
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<td>-.06</td>
<td>.07</td>
<td>.07</td>
<td>-.01</td>
<td>.05</td>
<td>.21**</td>
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<td>6. Introjected regulation</td>
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<td>-.39***</td>
<td>.28**</td>
<td>.24**</td>
<td>.21*</td>
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<td>7. Identified regulation</td>
<td>-</td>
<td>-.81***</td>
<td>.43***</td>
<td>.39***</td>
<td>.51***</td>
<td>.36***</td>
<td>.32***</td>
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<tr>
<td>8. Intrinsic regulation</td>
<td>-</td>
<td>.52***</td>
<td>.52***</td>
<td>.57***</td>
<td>.38***</td>
<td>.34***</td>
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<tr>
<td>9. Instr. class attitude</td>
<td>-</td>
<td>.88***</td>
<td>.72**</td>
<td>.55***</td>
<td>.53***</td>
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<td>.55***</td>
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<td>11. Task self-efficacy</td>
<td>-</td>
<td>.71***</td>
<td>.60***</td>
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<td>12. Social self-efficacy</td>
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<td>.52***</td>
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</table>

Note: Exercise participation = participants’ score on the Godin Leisure-Time Exercise Questionnaire. Instr. att. (exercise) and Aff. att. (exercise) = instrumental and affective attitudes toward exercise in general. Instr. class attitude and Aff. class attitude = instrumental and affective attitudes toward the fictitious exercise class. * = p < .05; ** = p < .01; *** = p < .001.