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

**SECOND REVISION**

Submitted: 3 April 2017

First revision submitted: 12 September 2017

Second revision submitted: 5 December 2017

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Abstract**

1  
2           We tested the effects of advertisements about a fictitious exercise class—derived using the  
3 theoretical constructs of agency and communion—on recipients' perceptions about, and interest in,  
4 the class. The final sample consisted of 150 adults ( $M$  age = 44.69,  $SD$  = 15.83). Results revealed  
5 that participants who received a communal-oriented message reported significantly greater exercise  
6 task self-efficacy and more positive affective attitudes relative to those who received an agentic-  
7 oriented message. Communal (relative to agentic) messages were also indirectly responsible for  
8 greater intentions to attend the class, via more positive self-efficacy beliefs and affective attitudes.  
9 These findings were obtained despite the use of another manipulation to orient participants to either  
10 agency or communion goals. The results indicate that the primacy of communion over agency for  
11 message recipients may extend to exercise settings and may occur irrespective of whether  
12 participants are situationally oriented toward agency or communion.

13

14 **Keywords:** Agency; Communion; Messaging; Persuasion; Exercise



1 Although concerns, values, and motives relating to agency and communion are prominent drivers of  
2 human behavior (Abele & Wojciszke, 2014; Bakan, 1966), researchers have yet to investigate the  
3 effects of persuasive exercise messages based on these concepts. Accordingly, this study represents  
4 an initial attempt to compare the relative effectiveness of message content that has been framed  
5 using these constructs.

## 6 **Agency and Communion**

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

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<sup>1</sup>For 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).

1           Although agency and communion have not yet been systematically focused upon (and  
2 compared) in studies of exercise messaging, there is theoretical and empirical support for the idea  
3 that individuals may respond differently to messages that emphasize either agentic or communal  
4 content. In their dual-perspective model of agency and communion, Abele and Wojciszke (2014)  
5 predicted that because communal content is “other-profitable”, it will be more valuable and  
6 important than “self-profitable” agentic content for the recipients of information. Other-profitable  
7 communal information (e.g., how helpful an individual is) provides information to others that is  
8 useful in understanding the intentions of an individual. Self-profitable agentic information (e.g.,  
9 how capable an individual is) provides information to the self that is useful in individual goal  
10 pursuit. Other researchers have expressed a similar view, noting that individuals’ judgements about  
11 others’ warmth are primary to judgments made about others’ competence and carry more weight in  
12 influencing others’ reactions (Fiske, Cuddy, & Glick, 2007). An additional reason to anticipate a  
13 communion over agency effect is that individuals may generally expect to obtain agentic benefits  
14 from all exercise classes, and these benefits may be expected irrespective of the nature of  
15 advertising for the classes. By focusing on communal features, advertisers of exercise may draw  
16 individuals’ attention to *additional* benefits of exercise. In other words, agentic benefits from  
17 exercise may still be inferred through communal-oriented messaging (because exercise is inherently  
18 related to agentic qualities), whereas communal benefits are less likely to be inferred through  
19 agentic-oriented messaging.

20           In support of the view that communal characteristics are more influential in shaping the  
21 perceptions of others relative to agentic characteristics, evidence indicates that (a) individuals  
22 generally prefer communal traits, such as being sociable, relative to agentic traits, such as being  
23 skilful, in others, (b) communal information regarding others is preferentially processed (e.g.,  
24 communal traits are inferred faster from others’ behavior than agentic traits, and communal traits  
25 tend to be mentioned prior to agentic traits when describing others), and (c) a target’s communal  
26 characteristics are more influential in shaping interpersonal preferences (i.e., the liking of the target)

1 relative to agentic characteristics (Abele & Brack, 2013; Abele & Bruckmüller, 2011; Wojciszke,  
2 Abele, & Baryla, 2009). The ‘primacy’ of communion over agency for recipients also appears to  
3 extend to advertising messages. Researchers have found, for example, that advertisements that  
4 highlight the communal (relative to agentic) characteristics of product endorsers promote more  
5 favorable attitudes toward the endorsers, the advertisement, and the brand (Infanger, Bosak, &  
6 Sczesny, 2012; Infanger & Sczesny, 2015).

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

17         On first glance, effects thought to result from a focus on agency may be similar to effects  
18 predicted by other conceptual frameworks, such as self-determination theory (SDT; Ryan & Deci,  
19 2000). Research findings indicate, for example, that feeling pressured to lose weight negatively  
20 predicts exercise uptake and positively predicts exercise drop out (Gillison, Standage, &  
21 Skevington, 2011), and that individuals with a larger discrepancy between their ideal and actual  
22 body size tend to have less relative autonomy for exercise (Markland & Ingledew, 2007). Using  
23 SDT, these types of findings have been interpreted as reflecting the negative outcomes that can  
24 occur when individuals perceive pressure to conform to societal standards (Markland & Ingledew,  
25 2007). A focus on agency, however, is distinct in that it deals specifically with outcomes relevant  
26 and important for the self, incorporating a focus on one’s own success and mastery, rather than

1 dealing with perceptions of external pressure from others that undermine autonomy. The  
2 manipulations used in the present study were consistent with this understanding of agency.

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

### 10 **Possible Boundary Conditions**

11         Despite the apparent support for the communion over agency principle, it is worth  
12 considering the boundary conditions for this effect. Researchers have found that the communion  
13 over agency effect was reversed in a context in which individuals' outcomes were highly reliant on  
14 others' agency (i.e., efficiency-oriented businesses in which employees benefit from the success of  
15 their supervisor) relative to a context in which outcomes were less reliant on others (e.g.,  
16 bureaucratic organizations where employee benefits are more dependent on factors such as length  
17 of employment and qualifications; Wojciszke & Abele, 2008). Additional work has shown that  
18 consumers may favor making purchases from profit-based organizations rather than non-profits  
19 because of the perception of greater competence at for-profits (Aaker, Vohs, & Mogilner, 2010).  
20 Furthermore, more communal descriptions of potential hires have been found to negatively impact  
21 hiring decisions in academia (Madera, Hebl, & Martin, 2009). Consistent with conditions discussed  
22 by Wojciszke and Abele (2008), these results involved relationships where there was a reliance on  
23 others' agency (that is, a consumer's reliance on the competence of the company, or an employers'  
24 reliance on the competence of their potential hires), providing further support for this as a possible  
25 boundary condition.

1           Of relevance for the exercise domain, there are many exercise settings in which one's  
2 success is (at least partly) dependent on others. One example is an exercise class, where potential  
3 outcomes (e.g., fitness improvements, weight loss, and health benefits) may be linked to the  
4 effectiveness of the exercise class instructor (e.g., ability to motivate class members and implement  
5 an effective program). Thus, it is possible that the communion over agency effect may be muted, or  
6 even negated altogether, when considering persuasive messages for a setting (e.g., an exercise class)  
7 in which personal outcomes are dependent on others. Similarly, it is possible that the features of a  
8 situation, such as the situation being more of an achievement context (e.g., elite athletic  
9 competition) or interpersonal context (e.g., getting to know new teammates) may impact upon the  
10 relative accessibility of agency and communion, and thus the strength of the primacy effect (Fiske  
11 et al., 2007).

12           An additional boundary condition for the communion over agency principle may be  
13 observed when individuals are *oriented* to focus on agency over communion. For example,  
14 individuals who are oriented to be more aware of the personal importance of agency to the self may  
15 be more likely to respond favorably to agentic content relative to communal content. Support for  
16 this proposition is found in literature that has examined the effectiveness of message tailoring, in  
17 which message persuasiveness is thought to be increased through the use of messages that are  
18 personally relevant to the recipient. Meta-analytic evidence supports the use of message tailoring as  
19 an effective technique in health communication (Noar, Benac, & Harris, 2007). For example,  
20 researchers have found that physical activity may be enhanced by using persuasive messages that  
21 are tailored to individuals' stage of motivational readiness to be active (Marcus, Bock, Pinto,  
22 Forsyth, Roberts, & Traficante, 1998), and there is evidence that messages that present a strong  
23 argument for exercise are more effective when they are tailored to be congruent with individuals'  
24 chronic time-orientation (i.e., sensitivity to shorter-term or longer-term outcomes; Dimmock et al.,  
25 2013). For the purpose of this study, therefore, we included information that was designed to orient  
26 individuals to consider either the importance of agency or communion to the self immediately prior



1 to receiving an advertising message (which, as discussed above, emphasized either agentic or  
2 communal aspects of an exercise class).

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

### 12 **The Possible Influence of Agentic and Communal Messages on Attitudes, Self-efficacy Beliefs,** 13 **and Intention**

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

22       Attitudes have long been considered central outcomes within persuasive messaging studies  
23 (cf. Petty & Wegener, 1998), and attitudinal judgments are recognized as important predictors of  
24 intentions and behavior in prominent behavior change models (cf. Ajzen, 1985, 1991; Becker,  
25 1974). In relation to agentic and communal exercise messages, two points lend support to the  
26 communion over agency principle (Abele & Wojciszke, 2014). First, communal benefits of exercise

1 classes (e.g., the formation and maintenance of interpersonal relationships) may serve to fulfil (at  
2 least in part) individuals' need to belong. This need is thought to reflect a powerful and fundamental  
3 form of human motivation (Baumeister & Leary, 1995; Deci & Ryan, 2000) and may therefore be  
4 important in shaping positive attitude development. Second, exercise advertising tends to emphasize  
5 outcomes such as being in shape or achieving physical health benefits (Dishman, 2001). However,  
6 work performed in the United Kingdom and United States indicates that over 90% of individuals  
7 already know that physical activity is important for these types of agentic outcomes (Martin,  
8 Morrow, Allen, Jackson, & Dunn, 2000; O'Donovan & Shave, 2007). Agreement with a message  
9 tends to first increase, then decrease with repeated exposure (Cacioppo & Petty 1979), suggesting  
10 that agentic messages may not be as helpful as communal messages in crafting positive exercise  
11 attitudes. Given that the consequences of a given behavior underpin individuals' attitudes towards  
12 the behavior (Ajzen, 1985), it may be that highlighting the communal benefits of an exercise class  
13 draws individuals' attention to (relatively more) novel and favorable behavioral consequences that  
14 extend beyond the agentic benefits they may also (or already) anticipate.

15         Similar to attitudes, individuals' self-efficacy beliefs are theorized to be important predictors  
16 of intention and behavior (cf. Bandura, 1977, 1997; Witte, 1992). In relation to the impact of  
17 agentic and communal messages on self-efficacy beliefs, it should be noted that the development of  
18 self-efficacy is facilitated by learning environments (e.g., exercise classes) in which competitive  
19 social comparison is deemphasized and individuals are instead supported by others to make  
20 personal progress (Bandura, 1993). Drawing from this notion, an exercise class that is focused on  
21 communion, such that the class members are helpful and supportive, may facilitate greater self-  
22 efficacy judgements relative to a class focused on advancing the self and separating from others,  
23 which is more aligned with agency (Abele & Wojciszke, 2014). We included two types of self-  
24 efficacy beliefs in the present study because of the possibility that messages emphasizing agentic  
25 content may be more likely to impact exercise *task* self-efficacy beliefs, whereas messages than  
26 emphasize communal content may be more likely to impact *social* self-efficacy beliefs.

1 Conceptually, exercise task self-efficacy reflects conceptions of one's agentic competency in  
2 exercise (e.g., perceived capability to perform activities and skills taught in the class), whereas  
3 social self-efficacy more closely reflects conceptions of communal competency (e.g., making  
4 friends and maintaining relationships).

5 In addition to attitudes and self-efficacy beliefs, we also included an assessment of  
6 individuals' intention to attend the exercise class. From the perspective of behavior change, it is  
7 important to influence intention as well as attitudes and self-efficacy beliefs because intention is  
8 theorized to be a more proximal predictor of behavior than these constructs (Ajzen, 1985, 1991).  
9 Building from our expectations that a communal message, relative to an agentic message, would  
10 produce more favorable attitudes and self-efficacy beliefs, we also expected a similar communion  
11 over agency effect to be observed for intention to attend the class. However, according to theory of  
12 planned behavior (Ajzen, 1991) principles—that attitudinal and efficacy (vis-à-vis perceived  
13 behavioral control) perceptions may, theoretically speaking, shape intention formation—we  
14 considered two potential ways through which message content may shape class-related intentions.  
15 First, we sought to explore evidence for a *direct* effect of communal/agency messages on intentions  
16 (in line with the supporting material outlined above) by testing for between-condition differences on  
17 participants' intentions. In addition, and consistent with theory of planned behavior tenets regarding  
18 the antecedents of intention formation, we also sought to examine whether emergent message  
19 effects upon attitude and/or self-efficacy outcomes may support an *indirect* effect of message  
20 content on intentions (i.e., a mediated effect via attitude and/or efficacy-related effects).

21 In sum, we developed exercise messages, emphasizing either agency or communion, that  
22 were ostensibly presented as advertisements for an instructor-led exercise class as a test of the  
23 boundary conditions of the established communion over agency principle. We sought to test the  
24 principle that messages focused on communal content would be received more positively (i.e.,  
25 would elicit more positive exercise class attitudes, greater exercise task self-efficacy and social self-  
26 efficacy perceptions for the class, and directly or indirectly, a stronger intention to attend the class)

1 relative to messages focused on agentic content. We examined two potential boundary conditions  
2 for this effect by (a) examining a setting in which personal outcomes were dependent on another  
3 (i.e., the exercise class instructor), and (b) orienting individuals to the importance of agency (or  
4 communion) prior to receiving the message.

## 5 **Method**

### 6 **Participants and Procedure**

7 In order to determine an appropriate sample size for this study, a mean effect size was  
8 calculated from two studies reported by Infanger and Sczesny (2015) regarding the effect of agency  
9 and communal endorser attributes on individuals' attitudes toward an advertisement. With power  
10  $(1-\beta)$  set at 0.80 and  $\alpha=0.05$ , one-tailed, we found that a sample of 120 participants should be  
11 sufficient to detect an effect in the present study. This power analysis was conducted using GPower  
12 version 3.1.9.2 (see Faul, Erdfelder, Lang, & Buchner, 2007). After ethical approval was granted by  
13 the lead authors' institution, a total of 194 individuals provided responses for the study. Of the 194  
14 responses recorded, 92 were provided by male participants and 102 were provided by female  
15 participants. The age range of these participants was 18 to 79 years of age, with the mean age being  
16 44.79 years ( $SD = 16.24$ ). A minority of participants (i.e.,  $n = 52$ ) indicated that they were currently  
17 a member of a gym or recreation center, or currently participating in organized sport (i.e.,  $n = 39$ ).  
18 On average, participants indicated that they participated in 2.36 ( $SD = 3.04$ ) bouts of strenuous  
19 activity per week, 3.15 ( $SD = 3.68$ ) bouts of moderate intensity activity per week, and 5.35 ( $SD =$   
20 7.52) bouts of mild intensity activity per week.

21 Participants were recruited from a pool of prospective participants maintained by the  
22 Qualtrics online survey/panel platform. Individuals are able to sign up to be part of this pool after  
23 they provide informed consent to be contacted by Qualtrics about study participation opportunities.  
24 Potential participants who met study requirements (i.e., Australian citizens aged 18 or over) were  
25 sent a link by Qualtrics to access the survey. This link re-directed participants to the study  
26 information and consent web pages. The information included an overview of the nature of the

1 questions to be completed as part of the study (e.g., exercise attitudes and behavior) but presented  
2 an intentionally vague description of the study purpose (i.e., “to examine your perceptions about the  
3 content of an exercise-related message”). The description was vague so as to avoid providing  
4 information that may alert participants to the fictitious nature of the exercise messages.

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

21       Following the writing task, computerized random assignment was again used to assign  
22 participants to an agency or communion advertising message condition, such that participants were  
23 placed in an ‘agency prime, agency advert’, ‘agency prime, communal advert’, ‘communal prime,  
24 communal advert’, or ‘communal prime, agency advert’ condition. The advertisements were  
25 ostensibly presented as promotional material for a new exercise class referred to as ‘BASE-45’.  
26 Participants were told that the company ‘Base Movement’ had developed the class and had engaged

1 the researchers to solicit feedback on the class. The class was described as “a multi-activity workout  
2 class” and “a comprehensive, total-body workout session that incorporates the most effective  
3 elements from endurance, strength, and flexibility training programs.”

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

20 Following the presentation of the advertisement message, participants responded to items  
21 designed to check their perceptions of the message manipulation (i.e., that it was credible,  
22 convincing, and processed deeply) and then reported their perceptions on the dependent measures  
23 (i.e., exercise class attitudes, exercise task self-efficacy, social self-efficacy, and intention to attend  
24 the exercise class). As the message focused on a specific exercise class, and not exercise in general,  
25 these dependent measures also focused on participants’ attitudes to, self-efficacy beliefs for, and  
26 intention to attend, the specific class. After completing these measures, participants were

1 automatically redirected to a webpage that presented debrief information, including describing the  
2 fictitious nature of the advertisement message, the true purpose of the study, and researcher contact  
3 information.

#### 4 **Measures**

##### 5 **Background and baseline measures.**

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

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

22 ***Exercise motivation.*** Participants’ typical exercise motivation was assessed using the 19-  
23 item Behavioural Regulation in Exercise Questionnaire-2 (Markland & Tobin, 2004). Participants  
24 were asked to consider their answers with respect to structured or planned exercise (and not  
25 organized sport). The instrument consists of five subscales that assess amotivation (4 items, e.g., “I  
26 don’t see why I should have to exercise”), external regulation (4 items, e.g., “I exercise because

1 other people say I should”), introjected regulation (3 items, e.g., “I feel guilty when I don’t  
2 exercise”), identified regulation (4 items, e.g., “I value the benefits of exercise”), and intrinsic  
3 motivation (4 items, e.g., “I exercise because it’s fun”). The response scale included anchors at 0  
4 (*not true for me*), 2 (*somewhat true for me*), and 4 (*very true for me*). Markland and Tobin (2004)  
5 reported support for the internal consistency and factorial validity of scores derived from the  
6 instrument.

### 7 **Responses to manipulations.**

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

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



1 advert manipulation on agency and communion outcome measures are also presented as  
2 Supplementary Material (S3).

3 **Dependent variables.**

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

12 *Social self-efficacy for the class.* Similar to exercise task self-efficacy, Zullig, Teoli, and  
13 Valoiss' (2011) social self-efficacy instrument was contextualized so that participants were asked  
14 about their social self-efficacy beliefs with respect to the BASE-45 class. The instrument has  
15 previously been employed in physical activity settings by Howle, Dimmock, Whipp, and Jackson  
16 (2015). Using an item stem and response scale that was consistent with the exercise task self-  
17 efficacy assessment, participants were asked to respond to eight items regarding their confidence in  
18 their ability to achieve social (and not task-related) outcomes in the class (e.g., "Become friends  
19 with your BASE-45 classmates"). Howle, Dimmock et al. (2015) reported reliability values (i.e.,  
20 composite reliability estimates) that support the use of the measure and found that social self-  
21 efficacy positively predicted motivation to present the self in a way which would have others  
22 favorably evaluate one's interpersonal qualities.

23 *Attitudes toward the exercise class and intentions to attend the class.* Class attitudes were  
24 assessed using the same items and response scale as that described for the baseline exercise  
25 attitudes instrument. The instructions and item stem were modified, however, so as to refer to the  
26 BASE-45 class specifically rather than exercise in general. Finally, a single item (Dimmock et al.,

1 2013) was used to assess intention to attend the BASE-45 class, (i.e., “How likely would you be to  
2 take part in BASE-45 in the next 6 months”), with participants asked to answer on a scale ranging  
3 from 1 (*I would not*) to 4 (*I would definitely*).

## 4 Results

### 5 Preliminary Analyses

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

16 Average scores for the three manipulation perception variables were above the midpoint of  
17 the nine-point scales, but still fell within the mid-range of these scales. This indicated that the  
18 advertising messages were perceived as relatively credible ( $M = 5.59$ ,  $SD = 1.89$ ), convincing ( $M =$   
19  $5.22$ ,  $SD = 2.18$ ), and were reported as being relatively deeply processed ( $M = 5.52$ ,  $SD = 1.88$ ). We  
20 used one-way ANOVA to investigate between-condition differences for these manipulation scores.  
21 Non-significant differences were observed for the credibility,  $F(3, 146) = 0.66$ ,  $p = .58$ ,  $\eta^2_p = .01$ ,  
22 convincingness,  $F(3, 146) = 0.49$ ,  $p = .69$ ,  $\eta^2_p = .01$ , and processing checks,  $F(3, 145) = 2.25$ ,  $p =$   
23  $.09$ ,  $\eta^2_p = .04$ , indicating that scores on these variables did not vary as a function of advert type.

24 A chi-square test of association was used to investigate whether there was an association  
25 between gender and condition. This test indicated that gender was independent of condition,  $\chi^2(3) =$   
26  $1.08$ ,  $p = .78$ . Two-way (i.e., advert condition x prime condition) multivariate ANOVA was used to

1 investigate possible differences in terms of age or exercise behavior according to condition. We  
2 observed no significant multivariate main effect for advert condition,  $F(2, 145) = 1.09, p = .34, \eta^2_p$   
3  $= .02, \lambda = .98$ , or prime condition,  $F(2, 145) = 0.20, p = .82, \eta^2_p < .01, \lambda = .99$ , alongside no advert-  
4 by-prime interaction,  $F(2, 145) = 0.70, p = .93, \eta^2_p < .01, \lambda = .99$ . Two-way (i.e., advert condition x  
5 prime condition) multivariate ANOVA was also used to investigate possible between-condition  
6 baseline differences in (a) the five different exercise motivation regulations, and (b) typical  
7 instrumental and affective exercise attitudes. Results for motivational regulations revealed no  
8 significant multivariate main effect for advert condition,  $F(5, 142) = 0.68, p = .64, \eta^2_p = .02, \lambda =$   
9  $.98$ , or prime condition,  $F(5, 142) = 0.29, p = .92, \eta^2_p < .01, \lambda = .99$ , alongside no advert-by-prime  
10 interaction,  $F(5, 142) = 1.06, p = .39, \eta^2_p = .04, \lambda = .96$ . Results for attitudes indicated that there  
11 was no significant multivariate main effect for advert condition,  $F(2, 145) = 0.10, p = .91, \eta^2_p < .01,$   
12  $\lambda = .99$ , or prime condition,  $F(2, 145) = 1.95, p = .15, \eta^2_p = .03, \lambda = .97$ , alongside no advert-by-  
13 prime interaction,  $F(2, 145) = 2.10, p = .13, \eta^2_p = .03, \lambda = .97$ . These analyses demonstrated that  
14 there were no condition-related differences on relevant baseline variables.

### 15 **Hypothesis Testing**

16 Means for all dependent variables, by study condition, are presented in Table 1. We used  
17 three-way ANOVA to inferentially examine the effect of advert condition, prime condition, and  
18 gender on each dependent variable. In doing so, and in light of several significant correlations  
19 between ‘baseline’ and ‘dependent’ variables (see Table 2), we entered all baseline variables (i.e.,  
20 exercise participation levels, typical exercise attitudes, exercise motivational regulations) as  
21 covariates in these analyses. Significant effects were observed for the task self-efficacy and  
22 affective attitude variables, but no main or interaction effects emerged for social self-efficacy,  
23 instrumental attitudes, or behavioral intention. For exercise task self-efficacy, there was a  
24 significant effect for advert,  $F(1, 134) = 5.41, p = .02, \eta^2_p = .04$ , and gender,  $F(1, 134) = 5.75, p =$   
25  $.02, \eta^2_p = .04$ , but not prime,  $F(1, 134) = 0.02, p = .97, \eta^2_p < .001$ . No significant two-way (i.e.,  
26 prime-by-advert, advert-by-gender, prime-by-gender) or three-way (i.e., prime-by-advert-by-

1 gender) interactions were observed. The significant effects for advert ( $d = 0.39$ ) and gender ( $d =$   
2  $0.24$ ) revealed that participants in the communal advert condition (relative to the agentic advert  
3 condition), and males (relative to females), reported greater exercise task self-efficacy. For affective  
4 attitudes toward the exercise class, there was a significant effect for advert condition,  $F(1, 134) =$   
5  $4.80, p = .03, \eta^2_p = .04$ , but not for prime condition,  $F(1, 134) = 1.84, p = .18, \eta^2_p = .01$ , or gender,  
6  $F(1, 134) = 0.79, p = .38, \eta^2_p = .01$ . There were also no significant two- or three-way interactions.  
7 These results revealed that participants in the communal advert condition ( $d = .35$ ) reported more  
8 favorable affective attitudes than those in the agentic advert condition.

### 9 **Mediation Analysis**

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

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<sup>2</sup> 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.

1 In line with the condition effects reported above, analyses of  $IV \rightarrow M$  pathways revealed  
2 message effects for task self-efficacy ( $estimate = .38, SE = .16, t = 2.42, p = .017$ , 95% confidence  
3 interval  $.07, .69$ ) and affective attitudes toward the exercise class ( $estimate = .58, SE = .27, t = 2.14,$   
4  $p = .034$ , 95% confidence interval  $.04, 1.12$ ). In terms of  $M \rightarrow DV$  pathways, we observed an effect  
5 for task self-efficacy in relation to attendance intentions ( $estimate = .33, SE = .11, t = 2.98, p =$   
6  $.003$ , 95% confidence interval  $.11, .56$ ), such that stronger task self-efficacy perceptions predicted  
7 stronger intentions to attend the class. The confidence interval associated with the bootstrapped  
8 indirect effect from advert condition to intentions through task self-efficacy ( $estimate = .13, SE =$   
9  $.07$ , 95% bias corrected confidence interval  $.03, .32$ ) did not cross zero, and thus indicated that  
10 although there was no direct message effect on participants' intentions, there was evidence to  
11 support an indirect association (via heightened task self-efficacy).

12 The  $M \rightarrow DV$  pathway between affective attitudes toward the class and intentions to attend  
13 was not significant ( $estimate = .14, SE = .08, t = 1.61, p = .11$ , 95% confidence interval  $-.03, .30$ ).  
14 However, the confidence interval associated with the indirect effect from advert condition to  
15 intentions through affective attitude toward the class approached, but did not cross, zero ( $estimate =$   
16  $.08, SE = .06$ , 95% bias corrected confidence interval  $.001, .26$ ), demonstrating tentative support  
17 another indirect association between advert condition and intentions. In sum, these analyses  
18 indicated that, relative to those who received an agentic advert message, the communal advert  
19 message elicited greater task self-efficacy and affective attitudes toward the class, which were in  
20 turn associated with stronger intentions to attend the class.

## 21 Discussion

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

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

4 Our findings revealed that individuals who were exposed to messages that advertised the  
5 communal benefits of an exercise class reported significantly greater exercise task self-efficacy for  
6 that class and significantly more positive affective attitudes toward it relative to individuals exposed  
7 to an agentic message (and we observed that these effects were not qualified by participant gender).  
8 This pattern of results was similar for the other dependent variables examined (i.e., social self-  
9 efficacy, instrumental attitudes, and reported likelihood of attending the class), but the effect was  
10 not statistically significant in these instances. From this pattern of findings, we can reasonably  
11 conclude there was partial support for the communion over agency effect. Although the effect sizes  
12 we observed for these significant differences were small or small-to-moderate, several other lines of  
13 evidence provide some confidence in the communion over agency effect. First, the findings could  
14 not be attributed to baseline between-group differences on the theoretically important variables of  
15 exercise motivational regulations, attitudes, or exercise behavior. Second, there were no significant  
16 between-group imbalances regarding gender or age. Third, and although observed using a distinct  
17 sample from the main study, results of the ancillary analyses indicate that the writing tasks were  
18 effective in manipulating participants' sense of agency and communion (see Supplementary  
19 Material, S3).

20 Given that advertising in the exercise industry is often focused on emphasizing the agentic  
21 benefits (e.g., becoming physically fitter and healthier) of exercise (Dishman, 2001), it is notable  
22 that communal-based exercise advertising may provide a relatively more positive effect on  
23 important psychological correlates of exercise involvement, such as exercise task self-efficacy and  
24 affective attitudes. In addition, given the proximal role that intentions are theorized to play in  
25 driving behavior (Ajzen, 1991), it was noteworthy that the communal message was also indirectly  
26 associated with stronger intentions, via the effects observed on task self-efficacy and affective

1 attitudinal judgments. The effect of communal messages on physical activity behavior is yet to be  
2 assessed, but the present results indicate that a positive effect is plausible. In light of these findings,  
3 it appears to make sense for communal information to (at the very least) be included as part of  
4 advertising messages that aim to influence predictors of exercise behavior (i.e., exercise task self-  
5 efficacy, affective attitudes) when the exercise takes place in interpersonal settings. With that in  
6 mind, it is worth noting that some previous or current [health](#) campaigns, such as “Go4Life”  
7 (National Institute on Aging, n.d.), do include communal content. [Advertisers of exercise may be](#)  
8 [able to draw from such examples of health messaging to craft messages that include communal](#)  
9 [information.](#)

10         With this being said, it is worth considering why we did not observe a significant difference  
11 between agentic and communal advert conditions for instrumental attitudes, social self-efficacy,  
12 and—in terms of a direct effect, at least—individuals’ intentions of attending the exercise class in  
13 the future. In relation to instrumental attitudes, it may be that generalized positive attitudes toward  
14 the usefulness of exercise classes shaped participants’ responses. That is, participants may have  
15 held pre-existing views that exercise classes are valuable (e.g., can promote positive health and  
16 weight loss) and then generalized this view to the classes described in the advertisements,  
17 regardless of whether agency or communion was emphasized. In support of this view, evidence  
18 indicates that the majority of individuals in Western societies may already be aware of the physical  
19 benefits of exercise (O’Donovan & Shave, 2007; Martin et al., 2000). In our sample, baseline scores  
20 indicated that individuals held generally positive (i.e., above the scale mid-point) instrumental  
21 attitudes for exercise (see Table 1). Still, the lack of a significant difference for instrumental  
22 attitudes is an important issue given that these attitudes (along with affective attitudes) may  
23 distinguish between individuals who do not intend to exercise, intend to exercise but fail to follow  
24 through, and intend to exercise and follow through on this intention (Rhodes, Courneya, & Jones,  
25 2003).

1           We also observed no significant differences between advert conditions for social self-  
2 efficacy. This finding is particularly interesting given the differences between advert content in  
3 describing the interpersonal conditions of the classes. For example, the communal message  
4 described a class that was characterized by a hospitable, welcoming, and interpersonally warm  
5 social environment. In light of the potential for the interpersonal environment to impact upon  
6 individuals' self-efficacy beliefs (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001), we had  
7 expected that the communal message would promote greater social self-efficacy beliefs than the  
8 agentic message. In interpreting this finding, it is important to note the absence of baseline  
9 information relating to participants' social self-efficacy beliefs or alternate relevant interpersonal  
10 constructs (e.g., social apprehensions or anxiety). In a similar way that we checked for group  
11 differences relating to baseline exercise attitudes and motivation, a check on these types of  
12 interpersonal variables would be worthwhile so as to rule out the possibility of baseline differences  
13 between groups influencing the findings.

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



1 accessible by participants, so as to limit any possibility of participants not intending to attend the  
2 class because of accessibility concerns.

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

18 Irrespective of these considerations, the present study does provide novel insight into the  
19 psychological implications of agentic and communal content on exercise message recipients.  
20 Although this study is not without limitations, as discussed above, we hope that it provides a  
21 starting point for researchers to continue to explore agentic and communal exercise messages. In  
22 addition to future work that tests whether the effects observed in the present study can be replicated  
23 (ideally in a larger and distinct sample), researchers could also build on and extend the present  
24 findings. For example, further insight may be gained by creating messages in which the agentic or  
25 communal focus is stronger and more explicitly highlighted. As one way of doing so, a communal  
26 message could describe a class where the purpose is creating a positive social atmosphere, with

1 fitness improvements being of lesser importance. Alternatively, or in addition, a further condition  
2 could be added such that communal and agentic benefits are presented together. It would then be  
3 possible to distinguish whether presenting agentic and communal information in combination is  
4 more influential than presenting only communal (or only agentic) messages.

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

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

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

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

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**Table 1.** Means and standard deviations for study variables, by condition

Variable	Agentic prime, agentic advert		Communal prime, agentic advert		Agentic prime, communal advert		Communal prime, communal advert		Alpha
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Baseline (exercise) variables</i>									
Instrumental attitude	5.74	1.17	4.93	1.36	5.35	1.38	5.40	1.32	.72
Affective attitude	5.10	1.63	4.09	1.73	4.72	1.60	4.69	1.63	.89
Amotivation	0.77	0.92	1.05	1.00	1.01	0.94	0.67	0.85	.87
External regulation	0.91	0.97	1.08	1.08	1.20	0.94	0.87	0.95	.86
Introjected regulation	1.72	1.05	1.78	1.12	1.75	1.07	1.68	1.14	.82
Identified regulation	2.63	1.02	2.42	1.00	2.51	0.88	2.55	1.01	.84
Intrinsic regulation	2.31	1.30	2.09	1.18	2.44	1.02	2.35	1.20	.96
<i>Primary (class) variables</i>									
Instrumental class attitude	4.70	1.66	4.15	1.67	4.77	1.38	4.60	1.47	.86
Affective class attitude	4.37	1.76	3.33	1.58	4.57	1.54	4.42	1.62	.90
Exercise task self-efficacy	2.99	1.12	2.67	0.96	3.20	0.86	3.26	0.87	.96
Social self-efficacy	3.03	1.01	2.85	0.73	3.16	0.84	3.15	0.79	.91
Intention of attending class	1.98	1.00	1.72	0.81	2.06	1.06	2.05	1.00	--

*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

Variable	2	3	4	5	6	7	8	9	10	11	12	13
1. Exercise participation	.08	.11	-.04	.03	.12	.16*	.15	.13	.13	.20*	.15	.15
2. Instr. att. (exercise)	-	.77***	-.48***	-.09	.23**	.65***	.66***	.58***	.56***	.51***	.30***	.26**
3. Aff. att. (exercise)		-	-.40***	-.10	.16	.55***	.69***	.50***	.57***	.47***	.24**	.29***
4. Amotivation			-	.46***	.03	-.48***	-.46***	-.30***	-.31***	-.36***	-.23**	-.08
5. External regulation				-	.45***	-.01	-.06	.07	.07	-.01	.05	.21**
6. Introjected regulation					-	.39***	.28**	.24**	.21*	.18*	.16	.33***
7. Identified regulation						-	.81***	.43***	.39***	.51***	.36***	.32***
8. Intrinsic regulation							-	.52***	.52***	.57***	.38***	.34***
9. Instr. class attitude								-	.88***	.72***	.55***	.53***
10. Aff. class attitude									-	.38***	.59***	.55***
11. Task self-efficacy										-	.71***	.60***
12. Social self-efficacy											-	.52***
13. Intention to attend												-

*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. \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$ .