
| RESEARCH ARTICLE

Examining Individual Versus Group Exercise Preference Among Maltese Gym-Goers

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| ABSTRACT

This paper presents a study of exercise behaviours among Maltese gym users where it seeks to understand what factors govern choices among gym users to exercise either alone or in a group. It is argued that being able to predict the propensity to exercise alone or in a group presents an opportunity for fitness providers to organise their efforts more efficiently in the broader context of contributing to improving public health and, therefore, possibly providing a more relevant gym product. Exercise and fitness literature highlights various factors likely to influence participants' proclivities to exercise solo or in a group, including motivation, competitiveness, sporting background, age, and gender. To explore the possible influences of such factors in the Maltese context, a cross-sectional survey was carried out via an online questionnaire, which was analysed statistically using logistic regression. This was conducted by first incorporating the above factors with a propensity to exercise alone or in a group as the dependent binary outcome. Finally, a most parsimonious model was applied following a stepwise iterated process of factor elimination. The results show that gender and age were the most significant predictors of training modality, with being male increasing the likelihood of engaging in solo gym exercise behaviour by over five times. Increased age was also a significant predictor of exercising alone. We present a discussion of the findings in terms of exercise and fitness service provision, as well as broader issues related to the interaction between gym culture and gender norms.

| KEYWORDS

Exercise, Physical Fitness, Social Behaviour, Training, Motivation.

| ARTICLE INFORMATION

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1. Introduction

The gym environment will typically bring together participants from different walks of life, engaging in sessions and exercise programmes tailored to their individual lifestyles, health, and goals (Cardone, 2019). The emergence of the fitness industry can be traced back to the late 19th century when the focus seemed to be more based on the concept of bodybuilding, whereas, in the past couple of decades, the industry has been increasing memberships steadily, which could be reflected their capability of adapting to "contemporary society" (Andreasson and Johansson, 2014). The present study focuses more specifically on the tendency of such individuals to exercise in the gym environment, either individually or in a group. Each modality naturally evokes a range of advantages and disadvantages from the perspective of the individual participants, with important implications for the way exercise is organised from the perspective of service providers. The general scope of the study was driven by the aim to further understand fitness service provision as a means of general physical activity promotion in the contexts of public health as well as private fitness service provision.

The World Health Organisation (2021) has recognised various positive initiatives by Maltese state actors in promoting exercise and fitness locally in response to persistently poor performances throughout the years in international rankings related to general physical activity levels and exercise participation (Kerr-Cumbo, Muscat-Inglott and Caruana-Bonnici, 2019). Helsen and Scheerder (2020) reported consistently low exercise participation rates among Maltese residents when compared to the rest of Europe.

Moreover, around 70% of the Maltese adult population was either overweight or obese in 2016, being one of the highest prevalence rates in Europe (Cuschieri et al., 2016), indicating that the consumption of energy-dense foods, among other multi-faceted factors such as an obesogenic environment (Cauchi et al., 2015), are exacerbating the public health issue of physical inactivity. In light of some degree of willingness on the part of state authorities to invest in better public health through physical activity and exercise promotion and a population deemed systemically under-active, there is a growing urgency to try to understand how exercise and fitness promotion may be most efficiently implemented. Also, this warranted urgency is justified due to the huge healthcare costs impinged on Malta's coffers, which are estimated to keep rising partly due to high levels of physical inactivity where the prevalence rates for adults (18+ years of age) are 36% for females and 47% for males. While for the elderly population, 52% of females and 63% of males are physically inactive (World Health Organization, 2022). For example, obesity in 2016 costed the Maltese government €36 million, with further associated cumulative direct health care costs that will amount to around €814 million by 2035 (Cauchi et al., 2018). In addition, direct healthcare costs attributable to non-communicable diseases and mental health associated with physical inactivity are approximately €4.6 million yearly (World Health Organisation, 2022). This implies that further investment in physical activity promotion strategies among the Maltese population is paramount.

Preferences for exercising either individually or in a group will naturally affect the nature and organisation of the exercise and fitness service, as well as the facility provision on a population-wide scale. In other words, the provision of exercise and fitness services must take on various forms depending on whether service users prefer to engage with them individually or in groups. While the typical gym provides exercise stations for solo users and small groups of training partners, some exercise studios provide empty space with moveable equipment designed for groups of anything up to 20 people at a time, sometimes more, performing simultaneous actions or sequences/circuits (Athanasia et al., 2020).

Group size, in this sense, has become a notable feature in the evolution of popular exercise environments more broadly and on an international scale. From home fitness, fitness centres/gyms, group exercise, obstacle course racing, and many others, group size and group management emerges as key defining characteristics (Yorks et al., 2017). The rise in popularity of group exercise methods, like CrossFit, has been described as nothing short of "explosive" (Fisher et al., 2017), with little sign of letting up. Paoli and Bianco (2015) describe the variety of fitness activities within the gym industry, from "resistance training" to altering "fitness classes," all of which symbolise different approaches to exercise appealing to individual/personal choices that are offered by traditional gyms. However, the previously mentioned CrossFit exercise methods have continued to hold their own in the highly competitive markets of the exercise and fitness sector.

More specifically, the present study was based primarily on how fitness centres/gyms have adapted in light of such innovations in their attempts to cater for multiple training modalities in terms of individual or group practice. Factors influencing the choice of training modality have not yet been extensively studied, particularly in the context of the Maltese fitness sector. Throughout this paper, the term "gym" denotes any indoor space where people engage in physical exercise using various specialised techniques and items of equipment, typically under the supervision or guidance of exercise professionals. The terms "fitness centre" and "health club" are typically used to refer to such spaces and usually contain a gym as part of a broader range of facilities and services related to personal physical (or more holistic) well-being and the maintenance of good general health. Furthermore, the terms 'solo' and 'individual' training will be used interchangeably throughout the study, which remain true to the same meaning.

2. Literature Review

Some studies have previously explored solo or group exercise in terms of the advantages and disadvantages they convey. Advantages associated with exercising individually include increased performance among adults with non-communicable diseases (King et al., 2015) and higher competitiveness in achieving one's goals (Gluchowski et al., 2018). Disadvantages include possible decreases in participation/adherence among those who train alone over a prolonged period of time (Radhakrishnan et al., 2020). The adherence to exercising was possibly explained by the fact that those who exercised with others over a one-year period exhibited enhanced mental well-being, according to Harada, Masumoto, and Kondo (2019).

A relatively recent study carried out to assess exercise individuals' adherence levels showed that higher levels of social support and overall supportive behaviour from fitness/gym instructors toward gym users led to higher gym attendance and overall consistency. This was achieved mainly by autonomously improving their motivational levels, indicating that past behaviour in terms of social support had a positive effect on exercise adherence (Rodrigues et al., 2020). Other studies have supported this view. For instance, "social connectedness" has been cited as a benefit of gym use among older people, where adherence rates were otherwise up to 70% lower when compared to those accompanied by a training partner (Farrance, Tsofliou and Clark, 2016). Pridgeon and Grogan (2012) similarly stated that a lack of social support (mainly due to the absence of a training partner) led to more frequent dropouts from gym-based exercise.

While previous studies have investigated the advantages and disadvantages associated with each modality, our main interest instead led us to approach the problem from the perspective of what explanatory factors may exogenously predict the behavioural outcome of training either alone or in a group as the main dependent/endogenous variable of interest. In other words, what factors might help us predict who is more likely to exercise either solo or in company? Components like gender, age, training age, sporting background, competitiveness and motivation have been offered as potentially influential factors thought to influence the proclivity to train either independently or in a group in the gym environment (Weinberg and Gould, 2023) and thereby formed the basis of our enquiry.

2.1 Motivation, competitiveness, and sporting background

Plante et al. (2010) found insufficient evidence in support of motivational levels as a significant factor influencing training modality in terms of solo or group exercise. Thinking of motivation in terms of perseverance and adherence, however, Radhakrishnan et al. (2020) found in their analysis of data logs pertaining to over 6000 gym-users that engaging in group exercise at the gym led to a lower “ceasing” rate than in those exercising individually. From this, we might infer that becoming demotivated increases in likelihood among those lacking training partners. So, while training alone may help predict decreases in motivation, it does not follow that a person with low motivation is more likely to opt to exercise in a gym alone. The relationship, therefore, is both interesting and complex in terms of how motivation and training choices interact, particularly in the presence of other confounding variables. As Radhakrishnan et al. (2020) duly acknowledged, additional factors (they highlight a lack of knowledge of gym equipment, among others) are likely to be at play. Caudwell and Keatley (2016) similarly argue that motivation is a complex and individuated phenomenon that has been measured and conceptualised in a multitude of ways.

Related to motivation is the concept of competitiveness, which can be conceived as competitiveness between members of a training group, or competitiveness directed at some other individual or abstract criterion-based or normative standard. Gluchowski and colleagues (2018) showed that older adults tended to favour training in groups as a result of their desire to compete with others in their group and immediate environment. Participants in their study (Gluchowski et al., 2018) also described increases in personal motivation simply as a result of others being present at the gym, regardless of their gender or age. A degree of impact emerges here from the perceived general “atmosphere” of a given gym. Additional aspects like music (De Prisco et al., 2021), for instance, are known to impact the atmosphere in the context of a broader gym-use “customer experience” (Ergun et al., 2022). We proceeded under the assumption, however, that the aspect of atmosphere most likely to impact proclivity to train either alone or in a group pertained more specifically to competitiveness as a relatively direct link/comparison to others within the immediate environment.

Skauge and Seippel (2020) pointed out that among those who exercise in gyms are those who have never participated in any previous sports and may be inexperienced with exercise altogether. However, a lack of sporting background does not necessarily imply low physical literacy, although one is less likely to find poor physical literacy in those who *do* have prior experience in competitive sports (Jurbala, 2015). No prior experience in competitive sport may render participants more likely to benefit from their exercise programme in conjunction with the provision of effective social support (Pridgeon and Grogan, 2012; Rodrigues et al., 2020). Therefore, it is a reasonable assumption that less social support may be needed in the case of participants with a background in organised sports. Sibley and Bergman (2018) have further shown that teenagers who participate in sport-specific exercising can endure more vigorous intensities, leading, in turn, to greater adaptation in other exercise scenarios. Also, such participants tend to subconsciously opt for more intrinsic styles of motivation, which leads to positive responses in terms of psychological satisfaction, which is not the case with extrinsic factors (Sibley and Bergman, 2016).

2.2 Gender, age, and other factors

Kanamori et al. (2016) argued that the benefits of training with others are more pronounced in older adults. They posit that such benefits, however, occur primarily in the psychological domain. It is likely that a wide range of psychological factors play a role in influencing the choice of exercise modality. Eichorn et al. (2018) noted that three out of four main motives for exercising among college students were psychological, which included exercising to get a “positive feeling” as well as to “join with friends”. We know that exercise is generally associated with a range of psychological benefits, including a reduction in the risk of adverse mental health outcomes like anxiety and depression (Weinberg and Gould, 2023). The psychological dimension of exercise, therefore, implies that preferences surrounding the choice of exercise modality are likely psychologically influenced.

The psychological benefits experienced by participants in Kanamori et al.’s (2016) study were enhanced as a function of older age when engaging specifically in group exercise. One might surmise from this that being older correlates with an increased propensity to exercise with others, yet intending or preferring to exercise with others does not necessarily mean that older people will end up doing so. Since isolation and loneliness are understood to increase over time (Tesch-Roemer and Huxhold, 2019), we would expect that in terms of predicting exercise modality, age is a factor actually more likely to increase the propensity to exercise alone and not in a group.

In terms of gender, some studies have suggested increased physical activity levels and propensity to exercise in males (Coen, Rosenberg and Davidson, 2018). In the gym environment, more specifically, we similarly expect to see males over-represented (Salvatore and Marecek, 2010), particularly in the case of weight training, which is a predominant gym-based exercise activity. Nevertheless, such disparities do not imply whether or not gender influences the choice of exercising alone or in a group. Weight training and most gym equipment are designed to be used without the need for any professional supervision as long as necessary duties are done by the user of the equipment (DeSimone, 2020). Furthermore, although the equipment is usually used individually, it is not precluded for use by training partners in small groups of two or more who take turns performing their sets and repetitions while maintaining a positive and mutually supportive training atmosphere. Axellson and Langdon (2017) found no significant differences between genders in exercise motivation levels, so depending on the existence of a relationship between motivation and choice of exercise modality, gender may play a mediating role.

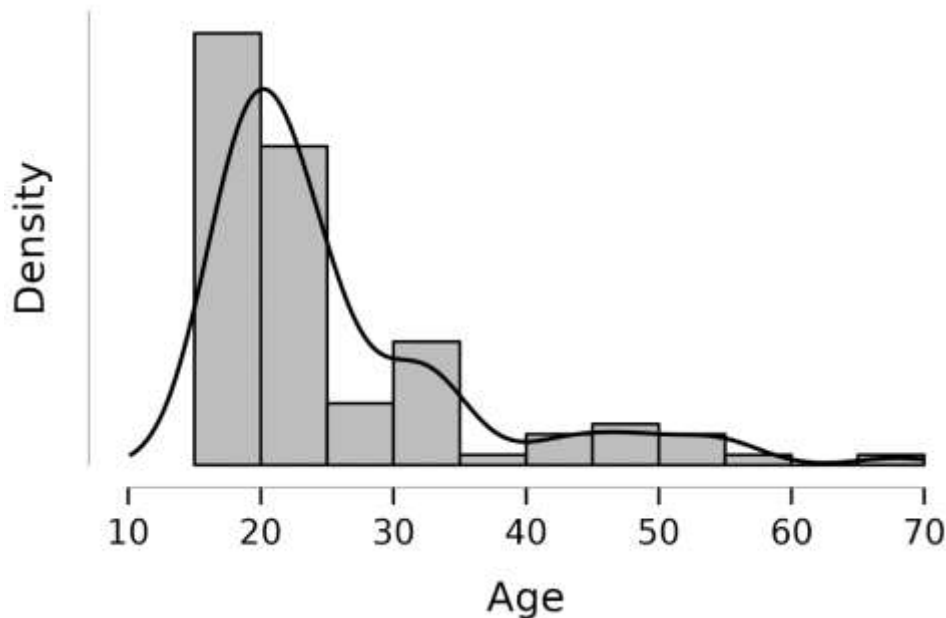
According to the foregoing literature, motivation, competitiveness, having a sports background, gender and age are all known to influence gym-based exercise behaviours. The present study, therefore, was conceived to explore how such factors might influence proclivity to exercise alone or in a group. Given that such a choice of training modality remains a relevant yet relatively poorly understood phenomenon and is ongoing in the context of a growing fitness sector in Malta, we aimed to gain a deeper understanding of factors affecting exercise choices among Maltese gym users. More specifically, the study was guided by the following research question: what are the key factors influencing proclivities to exercise in the gym either alone or in a group?

3. Methodology

3.1 Data Collection

An online survey was created using *Google Forms* and circulated among a convenience sample of 104 gym users in Malta. Ethical clearance was obtained in January 2023 from the institutional review board at the Malta College of Arts, Science and Technology. Several gyms were approached to assist in recruiting participants among their members via email. The questionnaire link was also shared on social media platforms, inviting gym-users to participate. The final sample consisted of 65.4% ($n = 68$) males and 34.6% ($n = 36$), with a mean age of 25.80 years (Min = 16, Max = 68), distributed as shown in Figure 1.

Figure 1. Age Distribution of Participants



Roughly a third of the participants (31.7%, $n = 33$) reported exercising in a gym for less than a year, while 28.8% ($n = 30$) had four years or more of gym experience. Just over half (56.7%, $n = 59$) reported having previous experience in competitive sport.

Only closed-ended items were used with a view to carry out a statistical analysis of the resulting data. The independent variables of interest were age (x_1), gender (x_2), frequency of attendance (x_3), training age (x_4), competitive history (x_5), competitiveness (x_6) and motivation (x_7). The dependent variable (y) was based on a multiple-choice response that included the options “always individually”, “mostly alone”, “mixed”, “mostly in a group”, “always in a group”, coded such that training always or mostly individually were allocated a value of 1, while mixed and the remaining options were allocated 0. Table 1 shows how the remaining variables were operationalised.

Table 1. Participant Variables

	Variable	Categories	Coding
<i>y</i>	Individual gym-user	"Always individually" "Mostly individually" "Mixed" "Mostly with other/s" "Always with other/s"	1 0
<i>x</i> ₁	Age	(Continuous)	(Years)
<i>x</i> ₂	Gender	Female Male	1 0
<i>x</i> ₃	Frequency of attendance	(Continuous)	(Sessions per week)
<i>x</i> ₄	Training age	>1 <1	1 0
<i>x</i> ₅	Competitive history	"Currently or formerly a competitive athlete." "Not formerly a competitive athlete."	1 0
<i>x</i> ₆	Competitiveness	(Continuous/Ordinal)	1 - 10
<i>x</i> ₇	Motivation	(Continuous/Ordinal)	1 - 10

3.2 Data Analysis

Logistic regression was selected to explore the effects of the independent variables surrounding gym-use on proclivity to exercise either alone or in a group of two or more. The dependent variable (*y*) was treated as an odd ratio, with the probability of training individually (*p_i*) divided by the probability of exercising in a group (1 - *p_i*). More specifically, the variable was treated as logit, or log-odds (using the natural log [based on Euler’s number = 2.718]), as follows:

$$logit = \ln(odds) = \ln\left(\frac{p_i}{1 - p_i}\right) = y \tag{1}$$

The logit represents a linear function in the independent variables (*x_n*), where *β_n* are the estimated model parameters, and *e* is the residual error, as follows:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_7x_7 + e \tag{2}$$

The data were imported into *JASP (0.17.3)*, an open-source statistical analysis software. Initially, the full model comprising all variables of interest (Table 3) was built using the standard logistic regression function in *JASP*. The stepwise function was then enabled in order to obtain the most parsimonious model (Table 4).

4. Results and Discussion

4.1 Results

Table 1 shows the descriptive statistics for the dependent and independent variables included in the study, using percentage of 1 values for variables measured on the nominal level, and mean, standard deviation (SD), as well as minimum and maximum values for those measured on the scale level.

Table 2. Descriptive statistics of all participant variables

	Variable	%	Mean (SD)	Minimum	Maximum
y	Individual gym-user	50	/	/	/
x ₁	Age*	/	25.80 (10.40)	16	68
x ₂	Gender (1)	34.62	/	/	/
x ₃	Frequency of attendance*	/	3.43 (1.13)	1	5
x ₄	1+ Training age (1)	68.27	/	/	/
x ₅	Competitive history (1)	56.73	/	/	/
x ₆	Competitiveness*	/	5.69 (2.56)	1	10
x ₇	Motivation*	/	7.20 (2.20)	1	10

Note: Variables marked * were treated on the scale level of measurement

Participants went to the gym on average just over three times per week, reporting anywhere from one to five visits. According to the 95% confidence intervals for the means reported, in general, participants were both competitive (5.201, 6.183) and motivated (6.780, 7.624). Using the binary outcome of individual and group exercise, the explanatory effects of all the variables were entered into a logistic regression model, as shown in Table 3.

Table 3. Full model of all participant variables

Term	b Estimate	Standard Error	z	Wald	p
(Intercept)	-2.853	1.389	-2.054	4.217	0.040
Age	0.052	0.027	1.900	3.608	0.057
Former Athlete (1)	0.060	0.442	0.135	0.018	0.892
Motivation	0.016	0.109	0.145	0.021	0.885
Competitiveness	-0.100	0.097	-1.033	1.067	0.302
Training Age > 1 (1)	0.365	0.477	0.766	0.587	0.444
Frequency	0.160	0.213	0.748	0.560	0.454
Gender (Male)	1.740	0.533	3.265	10.661	0.001

Following a stepwise iteration, the best model included two of the original independent variables, as shown in Table 4.

Table 4. Parsimonious model following stepwise iteration

Term	b Estimate	Standard Error	z	Wald	p
(Intercept)	-2.547	0.881	-2.893	8.369	0.004
Age	0.055	0.025	2.212	4.894	0.027
Gender	1.702	0.516	3.299	10.881	<.001

Or in linear form:

$$\ln\left(\frac{\hat{y}}{1-\hat{y}}\right) = 0.055(x_1) + 1.702(x_2) - 2.547 \quad (3)$$

The model shows that for every added year of age, on average, gym users are 1.057 ($\exp[0.055]$) times more likely to exercise alone. Furthermore, across any age, on average, men are 5.48 ($\exp[1.702]$) times more likely to exercise alone in a gym than women.

The hypothesis tests indicate that gender had the strongest effect ($W = 10.88, p < .001$) of all on proclivity to exercise in the gym alone. In other words, the strongest predictor for exercising in the gym alone is being male.

4.2 Discussion

4.2.1 Significant predictors

Gender was the strongest predictor of solo training ($W = 10.88, p < .001$), with our evidence suggesting that males were 5.48 times more likely ($\exp[1.792]$) than females to opt for individual exercise. Radhakrishnan et al.'s (2020) data suggest otherwise, engendering the need for further investigation into gender differences in exercise choices as well as possible influences from additional factors like culture. It is possible that cultural differences have some effect on the expression of gender behaviours in the context of gym-based exercise. Coen and colleagues (2018) suggest higher adherence rates among males. While there was no

difference in retention rates beyond one year of exercise between genders in the present study ($\chi^2 = 40, p = .53$), neither was there any correlation between being male and persevering with an exercise programme for longer than one year ($r = .06, p = .53$). Given the lack of any additional effects due to gender, the main finding of the study stands out as a clear and unexpected trend worthy of further study. It is worth noting that we cannot conclude from the present findings which aspect of the emerging phenomenon is stronger in terms of either the propensity of males to actively seek out solo training or the propensity of females to actively seek out group training. Exercising alone may furthermore indicate lower dependence on social support, which is a noted theme in the literature (Rodrigues et al., 2020; Farrance, Tsofliou and Clark, 2016; Pridgeon and Grogan, 2012). Variable adherence to stereotypic male behaviour more broadly within given cultures might represent an important factor in this equation.

Our parsimonious model resulting from stepwise elimination of non-significant factors also revealed, albeit weaker in terms of effect size, a significant effect due to age ($W = 4.89, p = 0.03$), with participants being approximately 6% more likely to train alone with each additional year of age ($\exp[0.055] = 1.057$). Kanamori and colleagues (2016) argue that older adults enjoy greater benefits from their training when accompanied by others, raising questions about whether the increased propensity to train alone is, in fact, due to choice or circumstance. More detailed research is needed to ascertain the degree to which older participants actively seek out solitary training or simply have no other option. In a study of 947 older participants, Beauchamp (2007) portrayed solo training among this cohort as rather “unappealing”.

4.2.2 Main effects

Based on the full model with all factors included, the evidence did not indicate any direct effect of motivational level on the decision to exercise individually or in a group ($p = 0.89$), corroborating prior research that has claimed there is insufficient evidence for a direct correlation between the two variables (Plante et al., 2010; Axellson and Langdon, 2017). While Radhakrishnan et al. (2020) argued that those who participate in individual exercise had lower adherence rates, they acknowledged that other factors like “lack of knowledge” and ease of accessibility to exercise likely influence the relationship. Nevertheless, motivation itself is a complex phenomenon, and studies typically treat it multidimensionally, differentiating between intrinsic and extrinsic motivation, as well as also taking individual preferences into account (Box et al., 2019). We adopted a simplified single-item scale for estimating motivation levels in part to maintain equivalence with our estimation of perceived competitiveness, also measured using a simple single-item scale.

Future research might focus more directly on the relationship between motivation and exercise/gym sociality, taking into account more complex and nuanced measures of motivation. It is interesting to note that, according to the findings of Thoman, Sansone and Pasupathi (2006), discussing exercise with peers tends to have a positive effect on motivation to exercise, so training in groups may not, in and of itself, interact significantly with motivation unless certain additional conditions are fulfilled. In other words, exercise participants may benefit only when cultivating certain types of relationships with their training partners for maximal benefit. The evidence did not support the existence of any relationship between frequency of attendance and propensity to train alone ($p = 0.454$). Other studies have shown that exercising in a company was correlated with overall gym attendance and consistency/adherence (Farrance, Tsofliou and Clark, 2016; Rodrigues et al., 2020).

The full model also showed that competitiveness ($p = .30$) and previous history of participation in competitive sports ($p = .89$) had no significant influence on the propensity to train individually or in a group. In terms of competitiveness, Gluchowski et al. (2018) argued that exercise adherence was enhanced when older adults engaged in some form of competition with one another. It should be noted, however, that self-assessed perceptions of personal competitiveness do not necessarily predict how competitive one might be in the context of training with a partner. In other words, a participant may report being highly competitive yet refrain from engaging in direct competition with their training partner, directing their competitive drive instead at someone else entirely or to some perceived social norm. Indeed, Bhawsar and Chattopadhyay (2015) suggest, in the context of group training in a corporate environment, that the level and state of competitiveness can also vary depending on the relevant “interest group” (Bhawsar and Chattopadhyay, 2015).

Competitiveness also likely depends on one’s goals, whereby those aiming, for instance, to improve their general health, may manifest competitiveness and self-perceptions of competitiveness, which vary from those motivated instead by aesthetic or performance/functional goals. How such factors might mediate the relationship between competitiveness and individual exercise preferences meanwhile constitute additional avenues for further research. Skauge and Seippel (2020) further suggest that males seem to have a more competitive mindset in the context of gym training, and at least in the case of effects on training alone or in a group, we found gender to be the more crucial factor.

5. Conclusion

The present study indicates that increasing age is not the only predictor of an increased likelihood to train individually, but the stronger factor appears to be gender. All other things being equal, males are over five times as likely as females to exercise in the gym alone. Whether males prefer this or whether the effect is due more to females explicitly preferring to exercise in groups is unclear; however, the evidence shows that, currently, at least in the Maltese fitness community, gym environments catering to either males or females may improve their service and efficiency by taking these trends into account.

Broader implications surround the possibility of males in Malta over-conforming to a traditionally masculine gender role, of which a main component is self-reliance (Levant et al., 2016). More research is needed to ascertain different rates of conformity to perceived gender norms among males of Malta and the Mediterranean region more broadly. However, the present study suggests that the gym environment represents at least some evidence of gender-differentiated behaviour among local males and females. The interaction between gym culture and traditional masculinity can invoke negative consequences in terms of risks of toxic behaviour (Turnock, 2021). However, it can also represent a more subtle form of fraternity among males as a consequence of sociological factors and the onset of post-industrial society.

In conclusion, we encourage exercise and fitness providers in Malta, as well as policymakers more broadly looking to promote various forms of physical activity and exercise to various cohorts of the total population, to consider the effects of gender and age on the propensity for participants to exercise alone or in a group when planning and organising publicly available fitness services and facilities. Healthcare professionals looking to prescribe physical activity and exercise with a view to improving the general health of patients might also benefit from considering solo or group exercise behaviours when suggesting particular forms of activities with the highest probability of maximising adherence and, consequently, the attainment of long-term health, fitness and general wellness goals.

The sample size in the present study was limited to 104 gym users. While the sample space in the local fitness community is relatively limited overall, more participants would have enabled greater confidence in the findings. Furthermore, the constructs included were measured on relatively simple scales, most particularly motivation and competitiveness. These are complex phenomena that can theoretically be measured in a multitude of ways. The simplicity we opted for instead enabled generic claims to be made, providing useful evidence for future, more focused studies. For instance, the effect of gender was both strong and significant, emerging as a worthy line of further investigation in the context of Maltese fitness culture.

Future studies might additionally explore, in some greater depth, the relationship between motivation and exercise/gym sociality while taking into account more nuanced measures of motivation. Intrinsic and extrinsic motivation, as well as other dimensions associated with self-determination, could provide some valuable insights in the context of organising fitness services and facilities for solo or group participation. Future studies might also consider the effects of different goals on the proclivity for training solo or in a group. Exercising to improve general health, lose weight, improve functional fitness, or build muscle, for instance, all involve potentially wide variations in the use of exercise methods and techniques. Some such methods may be more conducive to training individually, others to training in a group. Yet, how participants negotiate such requirements and actually carry out exercise behaviours in practice remains to be studied formally.

While it is interesting to know, for practical purposes, who exercises alone or in a group and why, we acknowledge that such behaviours are not necessarily the participants' first choice; in other words, just because certain people exercise alone, this does not mean they would not rather have a training partner or join a group, yet do not for whatever reason/s. Likewise, those exercising in a group may feel pressured to do so and prefer to exercise alone. Another factor of influence could be the individual's character in terms of introversion or extroversion, meaning extroverts might shift their behaviour within the gym according to that current environment, whereas introverts will most likely stay at a more balanced state according to their usual subjective motivational levels (Petric, 2022). Differentiating as such helps develop more nuanced interpretations of the exercise behaviours of, say, older people, who appear to be more likely to exercise alone. In short, further research is needed to ascertain how exercise preferences play out in practice and to what extent a gap may exist between intention and reality.

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