



# The impact of social media fitness influencer attractiveness on purchase intention of fitness items and self-esteem as a moderator

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Dissertation submitted in partial fulfilment of requirements for the MSc in Management with a specialization in Strategic Marketing, at the Universidade Católica Portuguesa, 2 January 2023

## **Abstract**

**Title:** The impact of social media fitness influencer attractiveness on purchase intention of fitness items and self-esteem as a moderator

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The purpose of this thesis is to understand how social media fitness influencers' attractiveness affects customers' purchase intention for fitness items and if this effect differs considering customers self-esteem. This thesis aims to explore how attractiveness, as one dimension of influencers' credibility, might lead customers to purchase an endorsed item. Self-esteem was included in this thesis as studies reveal that body image and exposition to attractiveness-related content might influence self-esteem and consequently decrease the persuasion effect. To better analyze the attractiveness of influencers and purchase intention, source-credibility scale, purchase intention and Rosenberg self-esteem scales were adapted and used. The data was collected through an online survey with 144 valid responses collected. The results of the present study did not find significant effects of social media fitness influencers' attractiveness on consumers' purchase intention for fitness items. Furthermore, results have revealed that consumer's self-esteem also does not moderate the effect of attractiveness on purchase intention. This thesis contributes to the academic community by providing a starting point for further research on the physical attributes of social media influencers that might have an impact on purchase intention in the emerging fitness market.

**Keywords:** Social Media Influencers, Fitness, Purchase Intention, Self-Esteem, Body Image, Source Credibility

## **Resumo**

**Título:** O impacto da atratividade dos influenciadores de fitness nas redes sociais na intenção de compra de itens de fitness e autoestima como moderador

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O objectivo desta tese é compreender como a atractividade dos influenciadores de fitness dos meios de comunicação social afecta a intenção de compra de artigos de fitness e se este efeito difere considerando a auto-estima dos clientes. Esta tese visa explorar como a atractividade, como uma dimensão da credibilidade dos influenciadores, pode levar os clientes a comprar um artigo endossado. A auto-estima foi incluída nesta tese, uma vez que estudos revelam que a imagem corporal e a exposição a conteúdos relacionados com a atractividade podem influenciar a auto-estima e, conseqüentemente, diminuir o efeito de persuasão. Para melhor analisar a atractividade dos influenciadores e a intenção de compra, foram adaptadas e utilizadas escalas de auto-estima Rosenberg e de intenção de compra. Os dados foram recolhidos através de um inquérito online, com 144 respostas válidas recolhidas. Os resultados do presente estudo não encontraram efeitos significativos da atractividade dos influenciadores das redes sociais na intenção de compra de artigos de fitness por parte dos consumidores. Além disso, os resultados revelaram que a auto-estima do consumidor também não modera o efeito da atractividade sobre a intenção de compra. Esta tese contribui para a comunidade académica ao fornecer um ponto de partida para mais investigação sobre os atributos físicos dos influenciadores das redes sociais que possam ter um impacto na intenção de compra no emergente mercado de fitness.

**Palavras-chave:** Influenciadores dos Meios de Comunicação Social, Fitness, Intenções de Compra, Autoestima, Imagem Corporal, Credibilidade da Fonte

## **Acknowledgments**

I would like to express my gratitude to Professor Cristina Mendonça, who supported me in every stage of this project with her expertise and wise words. Her constructive feedback and the patience were determinant for me to finish this project. To my parents, thank you for providing me the opportunity to fly and for never let me fall, making you proud is the highest reward. To my sisters, thank you for being my guardian angels and making possible the impossible. To my managers Carmo and Inês, thank you for being an example of resilience and for helping me to grow in the storm during my internship.

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## **1. Introduction**

Social media has been shaping the way we live our lives and the way we relate with others, either directly or indirectly. As humans, we are prone to socialize and to establish relations of varied nature with our similar ones. Thus, our behaviors and decisions are highly influenced by others who are seen as models, as explained further in this thesis.

Human habits are changing, and the digital world is becoming the new reality. Reports (Datareportal, 2022) have revealed that, on average, 30% of the Portuguese population's 7:56h of screen time is being dedicated to social media. The same report points out a 9% growth in the number of users of social media platforms in Portugal from 2021 to 2022, representing 83% of the total Portuguese population. Realizing this shift in society, many sectors have redirected their actions to digital platforms and are expanding to social media.

Liu and collaborators (2022) noticed that, during the COVID-19 pandemic, individuals were forced to long periods of lockdown and there was the urge to find alternative ways to socialize but also to keep a healthy lifestyle. These authors further note that virtual reality and mobile apps, among other advances on the fitness industry, were two of the solutions found to solve these issues since both are proven to promote fitness and wellbeing of people

However, social media's impact is not only positive. Research done during the COVID-19 pandemic (Kaur et al., 2020) has found that there was an increase in social media dependency not only due to the increase in free time while being locked at home but also because it is a easily accessible source of information when it comes to know more about fitness techniques or products through influencer content.

For businesses, social media has allowed the growth of the influencer marketing market, a marketing strategy that leverages the persuasive power of individuals among their networks to communicate, promote and sell products. Indeed, social media's expansion towards new formats and interaction models (e.g., TikTok) has led to positive expectations towards the future of the influencer marketing market predictions. A report from Refersion (Influencer Marketing Hub, 2022) values the influencer market industry to 16.4B\$ by the end of 2022, an increase of 2.6B\$ when comparing with 2021. With the increasing human exposition to the digital world, marketers have been recognizing social media influencers as great vehicles for their messages due to their ability of creating trust among consumers (Kim & Kim, 2021). Influencers use their

widespread access to consumer attention not only to promote products, but also to promote their values and lifestyle (Sokolova & Perez, 2021).

Studies on the topic support the fact that social media influencers impact the purchase decisions of consumers (Lou & Yuan, 2019), and researchers have focused on understanding what are the factors that indeed influence customers, as will be explained in more detail in the literature review.

This thesis focuses on a particular type of influencers: fitness influencers. Recent research on the role of fitness influencers in individuals' intentions to practice fitness activities has found that attractiveness is an important variable to develop relationships with the influencer and consequently increase the intentions to exercise (Sokolova & Perez, 2021). Yet, there is no extensive research around the effect of influencer attractiveness on the purchase intention of fitness products in individuals with different self-esteem levels. As previous research has found that self-esteem has an impact on purchase intention (Bi & Zhang, 2022), this thesis will focus on the variable influencer attractiveness and understand how it affects customers' purchase intention of fitness items, considering customers' self-esteem. Thus, the present study will try to answer the following questions:

**RSQ1:** Does social media influencer attractiveness impact consumers attitudes towards fitness products?

**RSQ2:** Does self-esteem influence how effectively social media influencer attractiveness impacts consumers' intentions towards fitness products?

To do so, this research will compare social media influencers with similar characteristics regarding their social media consumer base and similar expertise but with different appearance on relevant aspects for fitness consumers (body composition) and compare the results regarding purchase intention between individuals with high or low self-esteem.

### **1.1 Relevance of the project**

This study is expected to bring value to the academic community by complementing the existent knowledge about how influencer attractiveness works in favor of persuasion and social media fitness influencers' impact on customers' purchase intention, exploring an emerging industry that is capturing high amounts of investment and is deeply connected to body image and self-esteem. For the marketing decision makers in the fitness industry, this research is expected to help understand customers and their reaction to different social media influencers while



considering their customer's self-esteem and provide them tools to better manage their strategies and relationships with consumers through social media influencer strategies. For content creators in the fitness world, this study aims to help them to validate or retarget their strategy considering the level of self-esteem of their audience.

## **2. Literature review**

### **2.1 Social media influencer marketing**

Social media evolution has reshaped the way we interact with others around us by creating new communication, connection, and influence mechanisms (Jacobson et al., 2020). Many companies have embraced social media platforms as two-way channels for connection with their target audience to broadcast real-time information and to start conversations and exchanges with customers (Martín-Consuegra et al., 2019).

According to Freberg and collaborators (2011), social media influencer marketing is a viral marketing strategy that involves an online personality influencing consumers' attitudes through tweets, postings, blogs, or any other type of online communication.

Influencer marketing is pointed as a breakthrough regarding brand management tools (Jun & Yi, 2020) and is also seen as a communication strategy that companies can use by helping influencers to build networks in which brand information is shared (Leung et al., 2022).

Social media influencers can be defined as individuals who are thought to have the ability to engage with the targeted target audience, promote conversation, and sell goods and services. Influencers can range from being famous individuals to more narrow and specific 'peers' in the professional or non-professional world. (Interactive Advertising Bureau, 2018). Social media influencers attract a sizable audience due to their engaging content and, as their consumer base grows, they become better positioned to influence the purchasing decisions of their audience by commenting, promoting, or informing about items or services. This potential to create engagement is seen by brands as a great business opportunity to capitalize their marketing efforts and the predictions point to an increase in influencer marketing expenditures (Clapp, 2021), particularly now that academia is developing tools that help marketers make efficient allocation of their budgets on social media influencer strategies (Leung et al., 2022).

There are several motivations that lead brands to invest in social media influencers, such as getting customers' trust (Kim & Kim, 2021), generating brand equity, emotional attachment, brand trust, and brand loyalty (Jun & Yi, 2020). One other advantage of social media influencers

is that the endorsements and recommendations are seen as more authentic, organic, and usually closer to the consumer's reality than traditional forms of advertising (Talavera, 2015).

Influencers can also have a negative impact on a brand if they endorse a product or service that does not align with the values or beliefs of their followers. This can lead to a backlash against the brand (Shan et al., 2020). It is, thus, important for brands to carefully consider these potential negative effects and to work with influencers who align with their values and beliefs and who are transparent about any relationships or endorsements.

## **2.2 Social media influencers and fitness**

When it comes to the current social media scene, fitness content is becoming an attractive theme for influencers as brands keep increasing the expenditure in this type of marketing. Content creators share their expertise and tips with their consumer base, creating content about their workout routines, diets, equipment used, and results. Research reveals that social media influencers can act as sources of motivation and inspiration to sustain fitness activities when the results endorsed by the role model are perceived as realistic and inspiring (Sokolova & Perez, 2021) or else it becomes a discouraging force (de Valle et al., 2021).

Several companies have understood the potential that influencer marketing has on fitness market and have taken advantage by establishing strategies such as ambassador programs. One very well-known example of a brand that used this strategy is Gymshark. Gymshark is a brand created in 2012 that recruited fitness influencers to promote their products in exchange for clothing, equipment, and paid participation in sports competitions. Valuated over 1B\$, Gymshark was able to grow through a strategy of influencer marketing that created not only brand awareness but also the desire to belong to this fitness community (Influencer Matchmaker, 2019). Lululemon, a Gymshark competitor, has followed a similar strategy but with micro-influencers, who are individuals with relatively low number of consumers, achieving a 6.2B\$ revenue in 2021 (Gandola, 2022). These numbers reflect the importance of influencer marketing strategies on the fitness market and how these agents can be determinant when it comes to influencing consumers. This capacity of creating communities and promoting influence networks is one of the key advantages of influencer marketing. Inside these communities, influence occurs through word-of-mouth. Thus, influencers and brands profit from exploring the network effect of each customer (Li et al., 2011).

Consumers look for information regarding training and healthy eating in social media and influencers end up being a trustworthy source that provides simple and attractive guidelines to success (Aguilar & Arbaiza, 2021). Since customers look for online resources that may provide them with reliable and helpful product information, which will support their decision-making process and affect their purchase intentions, the connection between influencers and consumers can be described as one of dependency (Jiménez-Castillo & Sánchez-Fernández, 2019).

### **2.3 How does influencer marketing work**

The way influencers connect and share details of their lives with their consumers creates an image of being approachable, believable, and easy to relate with (de Veirman et al., 2017). It also promotes parasocial interactions that can be defined as “illusory relationships created between a spectator and a performer” (Sokolova & Perez, 2021, p.8). Ki and Kim (2019) did research on the mechanisms behind persuasion, with focus on the desire to mimic the influencer. Findings revealed that the desire of mimicking, which depends on variables such as attractiveness, expertise, prestige, interactive content, and information, has a positive effect on customer purchase intentions (Ki & Kim, 2019).

These findings are supported by the consumer’s doppelganger effect (Ruvio et al., 2013), which explains the behavior of people that intentionally mimic the consumption habits of others to look or act like those they are following. Ruivo and collaborators’ (2003) suggest that there are two types of mimicry: unilateral, when the imitator has no personal connection to the role model being imitated; or bilateral, when the imitator and the role model are in direct contact, such as family members. The mimicked individuals have desirable traits or attributes that the individuals mimicking do not have. The desire to behave like the role models drives the deliberate imitating behavior, which entails a sequence of acts and choices made with this objective in mind.

When it comes to influencer marketing, consumers’ and influencers’ mimicry relationship might be defined as unilateral since there is no two-way direct contact between parts, despite the illusory relationship created by the parasocial interactions (Sokolova & Perez, 2021).

Other factors related with influencers themselves have been studied. Authors as Leung and collaborators’ (2022) have studied the dimensions related with influencers’ communication that effectively shape consumers’ habits and purchases. These researchers have considered influencer-related variables such as consumer-base size, consumer-related variables such as fit with the brand, and message-related variables such as the positivity of the posts or sponsor

saliency. Credibility is also pointed as a determinant variable to explain the effect that social media influencers exert on their consumers. As defined by Sokolova and Perez (2021), credibility is “the reliability of the source and reflects the quality of the information provided by the communicator” (Sokolova and Perez, 2021, p.4). In 1953, Hovland and collaborators suggested expertise and trustworthiness as two factors of source credibility. Later, Ohanian (1990) outlined source credibility as a three-dimensional concept with the following dimensions: trustworthiness, expertise, and attractiveness.

Lou and Yuan (2019) have researched how the informative and entertaining value of the message shared by influencers and some variables related with influencer credibility impact both customers’ trust on branded posts and purchase intention. These researchers added source similarity as a fourth variable of credibility. Source similarity is related with the perceived likeness of ideological or demographic factors between influencer and consumer. Major findings point towards the positive effect of expertise and attractiveness on consumers’ perceived value of advertising and consequently on the purchase intentions. The same study highlights the positive impact that influencer credibility has on brand awareness. The present thesis will focus only on the attractiveness of the source.

## **2.4 Attractiveness**

According to Erdogan (1999, p.299) attractiveness is the “stereotype of positive associations to a person and not only entails physical attractiveness but also other characteristics such as personality and athletic ability”.

Pointed as an important factor when creating impressions about others (Ohanian, 1990), attractiveness is an important cue for social interactions since individuals cannot access others’ less visible characteristics such as intelligence, financial status, or education (Berscheid & Walster, 1974). Berscheid and Walster (1974) state that physically attractive people have higher probabilities of being perceived as references for possessing socially desirable personality traits such as being “sexually warm and responsive, sensitive, kind, interesting, strong, poised, modest, sociable, and outgoing” (p.169). These authors also found that attractive people are seen as references due to the perceived likelihood of having a successful life when compared to unattractive people.

Attractiveness evaluations may vary between genders and might, indeed, be considered as a completely subjective topic. Some might even state that “beauty is entirely in the eye of the

beholder” (Berscheid & Walster, 1974, p.25), but as revealed by Kopera and collaborators’ (1971) experiment, both genders seem to be consensual when it comes to rating attractiveness.

In Berscheid and Walster’s (1974) study, one of the characteristics pointed out as an important factor for attractiveness was body-type or body-composition. There are three body-types: a) endomorphs, who have bodies that are rounded and soft; b) mesomorphs, who are square and muscular; and c) ectomorphs who are thin and fine-boned (Sheldon et al., 1940). Evidence reveals that the mesomorph type is associated with higher ratings of attractiveness while the ectomorph and endomorph types are associated with lower ratings of attractiveness (Berscheid & Walster, 1974).

Being perceived as an individual with socially desirable characteristics or personality traits increases one's persuasion capacity. As suggested by Chaiken (1979), attractive individuals have traits that make them more successful communicators and consequently, more persuasive. Communicator attractiveness is determinant to reach the audience, change their beliefs (Baker & Churchill, 1977), positively influence their purchase intention (Friedman et al., 1976; Petty et al., 1983), and enhance consumer’s attitudes towards a brand (Kahle & Homer, 1985). Generally, attractive influencers have more influence over consumers than less attractive ones (Kahle & Homer, 1985).

To better understand the effects of attractiveness on persuasion, consider the elaboration likelihood model (Petty & Cacioppo, 1984), a framework on persuasion which allows the identification of factors that may have an impact on the cognitive process when making decisions based on information shared by others. Petty and Cacioppo’s elaboration likelihood model recognizes the existence of two persuasion paths: the central route and the peripheral route. The central route involves a high degree of elaboration on the message, meaning that individuals input a significant amount of conscious thought about the arguments being presented. When the elaboration is high, individuals judge by assessing the relevance of all information to carefully make decisions. Further research has shown that attitude changes driven by the central route tend to last longer than changes driven by the peripheral route (McNeill & Stoltenberg, 1989). When the receiver of the message has little interest in the information being shared, the peripheral route is utilized (Petty & Cacioppo, 1986). Research has shown that, using the peripheral route, individuals are more prone to focus on general perceptions, number of arguments of the message, their mood, positive and negative persuasion context signals, or other cues such as attractiveness (McNeill & Stoltenberg, 1989; Mello et al.,

2020). In the persuasion literature, attractiveness is pointed to lead individuals to use peripheral route (Kahle & Homer, 1985; Petty et al., 1983). As pointed by Mello and collaborators' (2020), attractive sources tend to persuade more effectively than unattractive sources since physical attractiveness can act as a cue, an argument, or can bias the thinking regarding the situation or the source of the message. Attractive sources also enhance memory and influence persuasion positively since individuals tend to identify with attractive sources (Kahle & Homer, 1985).

When it comes to fitness, influencers share content and promote products that persuade consumers to achieve a healthier lifestyle and a fit body. The social media ideal of healthy fitness is a stereotype of low body fat, slim and toned shape, and high muscle mass driven by the abuse of synthetic substances (Aguilar & Arbaiza, 2021). As this new attractiveness standards are imposed, brands use fitness influencers to reach their audience and persuade them to buy and use products, so consumers mimic the influencer's steps to succeed.

Thus, if attractive influencers are perceived as more persuasive and better persuaders are more successful in changing customer purchase intentions, the first hypothesis of the present study is:

H1: Fitness social media influencers' high attractiveness leads to higher purchase intention for fitness products.

## **2.5 Attractiveness and self-esteem**

Aside from the effects that social media fitness influencers might have on customer purchase intention, the fact that consumers perceive these individuals as role models also has an impact on other dimensions, such as self-esteem.

Self-esteem is a construct widely studied in the social and behavioral sciences and there are several definitions for the concept. Rosenberg (1965) points self-esteem as a subjective assessment of personal worth. While high self-esteem individuals respect and perceive themselves as high worth individuals, low self-esteem individuals feel self-dissatisfaction, self-rejection, and lack of self-respect. Baumeister and collaborators' (2003) state that self-esteem is related with the feelings of self-worth or the global evaluation of the self. High self-esteem is defined as a positive overall opinion of oneself while low self-esteem is related to negative self-evaluation.

As mentioned before, social media can be a great source of motivation for healthier lifestyle and exercising behaviors (Sokolova & Perez, 2021). One of the reasons that leads people to pursue healthier lifestyles is achieving a more satisfying body image (Tiggemann & Zaccardo, 2015). Studies developed in the medical and psychological sciences prove the direct impact that physical activities have on one's body image and self-esteem (Sani et al., 2016). Sani and collaborators' (2016) have found that physical activity has a direct and positive effect on self-esteem and also indirect and positive effect on self-esteem through variables as perceived physical fitness and body image. When individuals perceive positive and meaningful transformations in their body, body image tends to improve and individuals with higher levels of body image reveal higher levels of self-esteem. Research supports that body image and body dissatisfaction are negatively correlated, so people who are less confident are more prone to express unhappiness with their physical characteristics (Mellor et al., 2010). According to Baumeister and collaborators' (2003) self-esteem definition, individuals who express unhappiness with their characteristics can be categorized as having low self-esteem.

Despite the motivational role that social media fitness influences may have, the impact of social media is not always positive. The exposure to social media content and bodies perceived as perfect have created an online trend named "thinspiration", in which weight loss and eating disorders were glorified as methods to achieve perfection. Ghaznavi and Taylor's (2015) study have found that social media users that are prone to search for fitness, health or dieting information are more likely to be exposed to this type of content and, consequently, are more willing to believe that these are the ideal bodies. This trend has reported negative effects as negative body image, deterioration of mental health, and quality of life (Ghaznavi & Taylor, 2015). In fact, research revealed that viewing appearance-focused social media photos negatively affects body image perceptions, since when users compare themselves to that ideal and find that they do not meet it, they feel negatively about their body (de Valle et al., 2021).

As identified by the elaboration likelihood model, attractiveness acts as peripheral cue to decision making. Individuals are more sensitive to persuasion when it is done by attractive individuals. But as research reveals, when individuals perceive a negative difference between their image and the role model image, their satisfaction with own body image might decrease (e.g., de Valle et al., 2021) and, consequently, lower their self-esteem (e.g., Mellor et al., 2021) and compromise the effectiveness of the persuasion.

Bi and Zhang (2022) research on influencer credibility and purchase intention found that self-esteem moderates the effect that influencer credibility has on purchase intention. The research reveals that the positive association between influencer credibility and purchase intention for an endorsed product decreases with higher levels of self-esteem. Thus, this thesis will explore the moderator effect of self-esteem by hypothesizing:

H2: Purchase intention of individuals higher in self-esteem will be less influenced by the influencer's attractiveness.

### **3. Methodology**

#### **3.1 Design**

The present study follows an experimental design, with two hypotheses and three main variables: influencer attractiveness, purchase intention, and self-esteem. The first section of this research was grounded in literature reviews and previous research on the topic, providing support to the formulated hypothesis. To test the proposed hypothesis, a quantitative approach was taken by developing two questionnaires. In the first questionnaire, participants were presented with ten images of fitness models representing highly attractive influencers or regularly attractive influencers. Participants were invited to rate the attractiveness level of each image. This was done to select the two images with the highest and lowest ratings of attractiveness. The images selected were used in the second questionnaire as the manipulation of the attractiveness variable.

In second questionnaire, self-esteem, social media influence, and purchase intentions were measured. In this questionnaire, the independent variable influencer attractiveness was manipulated: Participants were exposed to highly attractive influencers or regularly attractive influencers wearing a sports watch as the promoted product. This was done to understand how the purchase intention regarding fitness equipment (dependent variable) varied, after measuring individuals' self-esteem (moderator). Since, in this study, the product type or level of involvement with a specific product were not measured, a general product that was not gender-specific nor particularly used for a specific sport was used to eliminate possible bias: a sports watch. The product used on the attractive model and on the regular model was the same. To measure self-esteem and see how it influenced the impact of attractiveness on purchase intention, the Rosenberg's (1965) self-esteem scale was used.



### **3.2 Participants**

As this research aimed to assess the effects of attractiveness on fitness equipment purchase intention, the participants recruited in both questionnaires were mainly individuals prone to practice sports. A QR code was used to provide access to the survey, to simplify the process. For the first questionnaire (pre-test), as no major statistical analysis was required except the analysis of the mean level of attractiveness of each image, it was conducted aiming to reach 30 participants as in the study of Baker and Churchill (1977), in which the same procedure was used to define reference models based on their attractiveness level. The pre-test questionnaire was responded by 33 participants.

Regarding the main questionnaire, the minimum number of respondents defined was 120 since we are exploring the differences between individuals with different levels of self-esteem (Wilson Vanvoorhis & Morgan, 2007). As for participant recruitment, one of the channels was social media platforms, such as Reddit, where communities with millions of consumers can be found. Main social networks as Facebook, Instagram and Twitter were also used to gather the largest number of valid responses possible. As was done for the pre-test, the main questionnaire was also distributed though QR code in a local gym since it is a place mainly visited by individuals who are prone to do fitness activities.

Responses from the online survey were collected from 11th November to 19th November and the data collected was analyzed through the statistical program IBM SPSS Statistics. The questionnaire was answered by 189 individuals. Only fully complete questionnaires were considered, reducing the number of valid answers to 146. The questionnaire had two attention check questions. Since all the participants stated that their answers were valid and given with enough attention to be considered, I only excluded the participants who failed the first attention check, ending up with 144 answers.

Considering the valid sample of 144 participants, 65% were females and 64% had ages between 18 and 24 years old. Most of the respondents were Portuguese residents (93%). Considering the occupation of the respondents, 49% were employed either full or part time, and around 51% were students or working students. From the considered sample, 56% had a completed bachelor's degree and 57% had a monthly net income ranging from 500€ to 1500€. Four questions were asked to better characterize respondents' profile regarding physical activities and the relation with social media fitness influencers. It is possible to identify that 68% of the respondents practiced sports one to four days per week, being walking, running, and cycling

the most practiced sports ( $n = 56$ ) followed by powerlifting, bodybuilding, calisthenics, and cross-fit ( $n = 46$ ). When it comes to fitness-related purchases, 73% of the respondents reported purchasing at least two times per year and 63% followed social media fitness influencers. For more demographic information see Appendix 1.

### **3.3 Materials and procedure**

Grounded on previous literature (Mello & Loureiro, 2015; Baker & Churchill, 1977), the data collection started with the development of a pre-test questionnaire. In this questionnaire, respondents were presented with an informed consent and, after accepting the conditions, a set of 10 pictures of fitness-related models was presented, considering of 10 individuals with different physical attributes assessed by the author of the research. As in Baker and Churchill (1977), the participants were asked to evaluate the model's attractiveness in a seven-point semantic differential scale from 1 (*unattractive*) to 7 (*attractive*). These pictures were gathered from databases free of copyright by using keywords such as "fitness models", "sports models", and "regular fitness models". To support the choice of the images, the pictures were selected according to their body-type, since there is evidence that this is an important factor to differentiate between attractiveness levels (Berscheid & Walster, 1974)

By comparing the attractiveness means of each of the 10 models obtained in the pretest, I could identify the most attractive and the least attractive pictures which were used in the main questionnaire to assess the impact of attractiveness on purchase intention. To increase the validity of the results, I used the two images ranked as more attractive and the two ranked as less attractive. Participants were ever only exposed to one of the four pictures selected.

The main questionnaire was available in English and Portuguese and 74% of the respondents answered in Portuguese while the remaining preferred the English version. The main questionnaire started with an informed consent, assuring the anonymity of the study. Since, as pointed out by Baker and Churchill (1997), individuals are "not willing to admit that their reactions are even influenced by physical attractiveness of the other party" (p. 542), respondents were told that this survey was part of a "marketing research on individuals connected to fitness activities and their purchase intention of fitness equipment". Following the informed consent, participants had to answer a block of demographic questions and questions regarding sports habits. Questions regarding the frequency, practiced activity, fitness social media and fitness purchase habits were presented in this block.

After the introductory block, the main variable self-esteem was measured but, once again, the introduction of the block did not mention its true purpose to reduce bias. The instruction requested participants to think about themselves and answer based on their self-assessment. This set of questions was Rosenberg's (1965) scale and included questions such as "I feel that I am a person of worth, at least on an equal plane with others". As in the original scale (Rosenberg, 1965), the items were measured through a scale of 1 (*Strongly agree*) to 4 (*Strongly disagree*).

After the self-esteem block, the participants were instructed to read about an influencer and his endorsement of a sports watch. Participants were randomly presented with one of the four pictures (attractive or regular influencer) wearing the sports watch, followed with the respective cover story (that was the same for all influencers) and a set of questions regarding participants' purchase intention for the sports watch. The set of three questions used to measure purchase intention was adopted from Dodds and collaborators (1991) and had a Likert scale form 1 (*Strongly disagree*) to 7 (*Strongly agree*). At this stage of the questionnaire, participants' attention was checked through a question requesting them to select "Disagree" if they were reading the questions carefully. The last variable measured on this questionnaire was the attractiveness of the influencer. This was measured after purchase intention to avoid that the attractiveness ratings would influence the purchase intention measurement, since individuals tend to deny the effect that attractiveness has on their decisions, as pointed by Baker and Churchill (1997). Participants were presented with the same influencer image as before, without being able to go back and change their answers regarding purchase intention. Attractiveness was measured adapting the source credibility scale (Ohanian, 1990), a 15-item scale that was created to measure expertise, trustworthiness, and attractiveness as dimensions of source (communicator) credibility. Since this research only focus the attractiveness, only five items were used: "attractive"/"unattractive"; "classy"/"not classy", "beautiful"/"ugly", "elegant"/"plain", "sexy"/"not sexy", measured on a semantic differential scale with 7 points.

In the end participants were asked about the attention they gave to the study to reduce the noisy data by eliminating answers that were not given with the proper attention. The full questionnaire is available in Appendix 2.

## 4. Results

### 4.1 Scale assessment

A factorial analysis was performed to evaluate the scales used in in this thesis: attractiveness, purchase intention and self-esteem.

As explained by Field (2009), factor analysis is used have a better understanding of the variables' structure and to simplify the data by reducing the number of variables while preserving the maximum amount of original information as possible. To perform the factorial analysis for all the three constructs, a varimax rotation was used, as recommended by Field (2009). There are several criteria that justify the number of factors to extract when applying factor analysis to the data. One important concept is the eigenvalue, which indicates the substantive importance of the variable in the factor. Furthermore, Cattell (1966) has proposed a method in which the number of factors to extract would be the point of inflexion in the curve representing the eigenvalues of each factor, which is known as the scree-plot. Kaiser (1960) also recommended to extract the factors with eigenvalues higher than 1. One other concept that should be taken into consideration when performing factorial analysis is the Kaiser-Meyer-Olkin (KMO) value, which indicates the adequacy of the sample to factor analysis and varies between 0 and 1. Values of 0 indicates wide dispersion in the correlation pattern and values close to 1 indicate that correlation patterns are not-dispersed, and it will be possible to distinguish different factors (Field, 2009). As highlighted by Field (2009), these criteria are meant to be applied in samples larger than 200 participants. Although this thesis has 144 participants, the factor analysis was applied, acknowledging that this is a limitation. To start with the analysis, the scales had to be transformed to perform factorial analysis. Regarding the Rosenberg self-esteem scale, five of the ten items were presented in the negative form. The scale of these items had to be reversed to allow proper interpretation. After having reverse-coded all the necessary items, factorial analysis was performed. As pointed by Field (2009), when performing factorial analysis, it is expected some degree of correlation between variables. Thus, variables with correlation values bellow 0.3 should be excluded. As it is possible to observe in Appendix 3, in the correlation matrix, the intercorrelation between variables for the item "I feel that I'm a person of worth, at least on an equal plane with others." has five correlations bellow 0.3. This item was thus deleted. A new factorial analysis was performed without the item and presented a KMO value of 0.87 that is relatively close to 1, meaning that it is suitable for factor analysis. Bartlett's test of sphericity is a test to also consider when

making factor analysis. It tests for the correlation of the dependent variables (Field, 2009). Given that the test results ( $p < .001$ ) were lower than .05, it is possible to reject the dependency of the variables and proceed with the analysis. From this analysis, one factor was extracted using the Kaiser (1960) criteria, extracting only factors with eigenvalues above 1. In this case, one factor was the only solution with an eigenvalue above 1 (eigenvalue = 4.63) and explaining 51% of the variance (Appendix 3), so we can conclude that the items are measuring a single construct, self-esteem. After this conclusion, the variable self-esteem was treated as one calculating the mean scores of the scale's items, excluding only the item that had five correlations below 0.3.

Regarding the purchase intention variable, which had three items measured in the same 7-point Likert scale, the factorial analysis was performed and presented a KMO value of 0.76 and a statistically significant Bartlett's test of sphericity ( $p < .001$ ). The one factor solution was the only fulfilling Kaiser's (1960) criteria with an eigenvalue of 2.33 and explaining 88% of the variance, meaning that these three items could be treated as one variable (Appendix 3). After this conclusion, the variable self-esteem was treated as one by averaging all three items.

The attractiveness variable was measured with five items in a 7-point semantic scale for four different models. Each item was transformed into a new variable by summing the scores given in each model. Afterwards, factorial analysis was performed with the new variables and presented a KMO value of 0.89 and a statistically significant Bartlett's test of sphericity ( $p < .001$ ). The one factor solution was the only fulfilling Kaiser's (1960) criteria with an eigenvalue of 3.71 and explaining 74% of the variance, meaning that these items could be treated as one Appendix 3. After this conclusion, the variable attractiveness was treated as one by averaging all five items.

#### **4.2 Bivariate correlations**

Pearson correlation is a measure to verify the strength and direction of association, positive or negative, of the relationship between two variables (Field, 2009). Following this reasoning, the Pearson correlation test was run to determine the relationship between attractiveness, purchase intention, and self-esteem. Moreover, control variables were added to this analysis to identify any other correlations between variables.

To analyze if there was any correlation with the exposition to attractive versus non-attractive, a variable was created to identify which model participants were exposed to. The first attractive model was coded as 1, the second attractive model was coded as 2, the first low-attractiveness

model was coded as 3 and the second low-attractiveness was coded as 4. The four categories of this variable were then recoded into a dummy variable in which 0 represents attractive models and 1 represents low-attractiveness models.

To understand if there was any influence of presenting two different pictures in each condition of attractiveness, a second dummy variable was created using the same procedure. The model identity variable was recoded into a dummy variable in which 0 represents the first high and first low-attractiveness models, while 1 represents the second high and second low-attractiveness models.

Some control variables were also considered in this analysis due to their possible relation with the interest in purchasing the fitness smartwatch, such as frequency of fitness activities practice, activity most practiced, purchase frequency of fitness items, following social media fitness influencers, and gender. Aside from the last two variables, all the others are categorical with more than two categories, requiring the transformation into dummies for further analysis. Before coding the dummy variables, the descriptive frequencies of each variable were evaluated and the categories with less than 10 answers were merged into “Others”, reducing the number of dummy variables that needed to be created. When creating the dummy variables, it is relevant to take in consideration that one of the categories will be coded with 0 in every variable, meaning that it is the baseline or control group for the analysis. In this sense, for the variable physical activities’ frequency with four categories, three dummy variables were generated, and the baseline was the highest frequency, 5-7 times per week. Considering the type of activity, the baseline were all the sports presented other than walking, running, or cycling and powerlifting, bodybuilding, calisthenics and cross-fit. The purchase intention baseline was at least once per month, being weekly purchases merged in this category. Males and following social media fitness influencers were the control groups in gender and following social media fitness influencers variables respectively. The recoding process is summarized in Appendix 4.

The results of the correlation analysis reveal that purchase intention has no correlations with the variables attractiveness or self-esteem as  $p > .05$ . According to Cohen (1988), the size of the pearson correlation is small if between 0.1 and 0.3, medium if between 0.3 and 0.5 and large above 0.5. Thus, purchase intention reveals a positive but small to medium correlation with gender ( $r = .30, p < .001$ ). Considering attractiveness, it is possible to verify that it is negatively and strongly correlated with the exposure to the different conditions of attractiveness (high vs low;  $r = -.72, p < .001$ ). It was possible to identify a negative and weak correlation between

attractiveness and practicing powerlifting, bodybuilding, calisthenics, and cross fit ( $r = -.18, p = .028$ ). It was also positively but weakly correlated with practicing walking, running, and cycling ( $r = -.18, p = .030$ ), and with purchasing fitness items once a year ( $r = -.19, p = .027$ ). Considering self-esteem, the only correlation found was with not practicing physical activities during the week, with negative direction and small correlation strength ( $r = -.18, p = .035$ ). All the correlations found are summarized in Appendix 4.

### 4.3 Hypothesis testing

One of the objectives of the present thesis is to understand if social media influencers' attractiveness impacts their consumers' attitudes towards fitness products by increasing their purchase intention.

#### 4.3.1 First hypothesis

The first hypothesis formulated was that influencers considered more attractive would lead to higher consumer purchase intention for fitness products. To analyze the impact that social media fitness influencer attractiveness had on purchase intention, a linear regression was performed, and the results are presented in Table 1.

Dependent Variable	Purchase Intention		
Independent Variable	Model Attractiveness		
	$\beta$	$t$	$p$
Constant	2.72	15.23	.000
Model Attractiveness	-0.06	-0.24	.809
F	0.06		.809
R Square		.00	

Table 1 Linear Regression- Purchase intention and attractiveness

The linear regression reveals that attractiveness has no statistically significant effect on consumers purchase intention ( $p = .809$ ). Attractiveness by itself accounts for no variation in purchase intention ( $R^2 < 0.01$ ). The model also failed in explaining sufficient variance of purchase intention,  $F(1, 14) = 0.059, p = .809$ ). Therefore, we can conclude that this model is

not significant for predicting purchase intention and that no support was found for Hypothesis 1.

### 4.3.2 Second hypothesis

Despite the non-significant effect that social media influencer attractiveness revealed to have on purchase intention, this thesis also wanted to understand if consumers self-esteem has an impact on how attractiveness affects customer purchase intention. Thus, the second hypothesis formulated was that purchase intention of individuals higher in self-esteem will be less influenced by the influencer's attractiveness.

To analyze the effect that attractiveness and self-esteem had on purchase intention, a linear regression was performed by adding the variable self-esteem to the previous regression. The interaction between the two variables was also added to understand if self-esteem acts as a moderator between purchase-intention and social media fitness influencer. The results are presented in Table 2.

Dependent Variable	Purchase Intention		
Independent Variable	Model Attractiveness, Self-Esteem, Model Attractiveness X Self-Esteem		
	$\beta$	<i>t</i>	<i>p</i>
Constant	1.97	1.91	.58
Model Attractiveness	-0.59	1.91	.684
Self-Esteem	0.26	-0.41	.460
Model Attractiveness X Self-Esteem	0.17	0.36	.719
F		0.75	.527
R Square		.02	

Table 2 Linear Regression- Purchase Intention, attractiveness, self-esteem, and interaction

The linear regression revealed that including self-esteem and the interaction between self-esteem and attractiveness in the model increases the explicative power of the model to 1.6% ( $R^2 = 0.02$ ). As in the first hypothesis, the ANOVA table reports a non-significant effect of the variables and interaction on purchase intention,  $F(3, 14) = 0.75, p = .527$ . After analyzing the



collinearity statistics that reports strong correlations between variables, it is possible conclude that the interaction term should be removed ( $VIF = 33.55$ ) to avoid bias in the regression model (Field, 2009). Logically, interaction terms present collinearity since they are the product between two variables. The regression was reconducted and the results reveal that the effect that the variables have on the model remains non-significant,  $F(2, 14) = 1.06, p = .349$ . The evidence found led to the conclusion that the second hypothesis was also rejected, meaning that self-esteem is not a moderator of the impact that social media fitness influencers' attractiveness on purchase intention.

### 4.3.3 Covariates

As more information was collected from the respondents, further analysis was done to explore if other factors influence purchase intention. The control variables previously mentioned in the Bivariate correlations section were added to the model of the linear regression. Table 3 summarizes the information concerning this regression.

Dependent Variable	Purchase Intention		
Independent Variable	Model Attractiveness, Self-Esteem, Model Attractiveness X Self-Esteem, Model Attractiveness Order, 5-7 times per week x Never, 5-7 times per week x 1-2 times per week, 5-7 times vs 3-4 times per week, At least monthly vs At least once every year, At least monthly vs At least once every 6 months, At least monthly vs At least once every 3 months, Others vs Walking / Running / Cycling, Others vs Powerlifting / Bodybuilding / Calisthenics / Cross-fit, Gender, Following Social Media Fitness Influencers		
	$\beta$	$t$	$p$
Constant	1.77	1.38	.171
Model Attractiveness	-0.32	0.66	.511
Self-Esteem	0.14	-0.41	.460
Model Attractiveness X Self-Esteem	0.17	0.39	.700
Model Attractiveness Order	-0.08	-0.33	.744
5-7 times per week x Never	-0.64	-1.07	.288
5-7 times per week x 1-2 times per week	-.24	-0.43	.669
5-7 times x 3-4 times per week	-.36	-0.60	.549
At least monthly vs At least once every year	0.42	1.16	.249

At least monthly vs At least once every 6 months	0.32	0.73	.465
At least monthly vs At least once every 3 months	0.23	0.45	.654
Others vs Walking / Running / Cycling	0.25	0.80	.424
Others vs Powerlifting / Bodybuilding / Calisthenics / Cross-fit	-0.13	-0.41	.680
Gender	0.90	3.31	.001
Following Social Media Fitness Influencers	-0.33	-1.20	.233
F		1.71	.060
R Square		.157	

Table 3 Linear Regression- Full model

With the control variables included, the explicative power of the model increases to 16% ( $R^2 = 0.16$ ). The ANOVA has an  $F(14, 129) = 1.71$  and it is not possible to reject the null hypothesis that all the coefficients of the model are equal and equal to zero ( $p = .060$ ). Nevertheless, when exploring the coefficients, only gender is revealed to be statistically significant when predicting purchase intention,  $\beta = 0.90$ ,  $SE = 0.27$ ,  $p < .001$ , with women having higher purchase intention.

## 5. Discussion

### 5.1 Summary of results

Social media influencers are capturing companies' attention through their capacity to influence customers' relationships with brands. The investments in this marketing strategy are increasing, and managers need to understand how they can leverage their investments by making strategic investments. As the fitness market grows, social media influencers started to produce content to this market segment by promoting healthy living, physical activities, selling fitness-related products, such as workout and nutrition plans, and endorsing products or brands. Consumers perceive these persons as role models and are influenced by them, either on lifestyle choices or even in purchase decisions. As pointed out by (Ohanian, 1990), attractiveness is part of the credibility and, as so, this thesis aimed to explore if social media fitness influencers' attractiveness led to higher purchase intentions for fitness items and if consumers self-esteem moderated this effect.

The main results of this thesis failed to find that attractiveness by itself influenced purchase intention and that self-esteem of consumers affected the way individuals are influenced by the attractiveness of the influencer, contrary to what was expected. Therefore, both hypotheses were rejected. The information collected through the survey allowed to test some of the underlying ideas behind these hypotheses and better understand possible reasons behind the results found. A correlation between purchase intention and attractiveness was expected but not found. The findings of this thesis thus go against the previous research around this relationship (Friedman et al., 1976; Petty et al., 1983). The only significant correlations found for purchase intention were gender and following social media fitness influencers. The results reveal that females have higher purchase intention for fitness items (in this case, a fitness watch) than males and people who follow social media fitness influencers have lower purchase intention for fitness items. This finding does not converge with the literature grounding this thesis and might be explained by several factors such as the specific product endorsed, the absence of brand information concerning the product, or the experience itself.

Confirming the findings of Kopera and collaborators' (1971) about attractiveness and the similarity of ratings between genders, results reveal that gender was not correlated with attractiveness. Furthermore, it is possible to state that the attractiveness manipulation was successfully done, as a correlation between the attractiveness condition presented to the participants and attractiveness ratings was found. Non-attractive models were rated as less attractive than high-attractiveness models, confirming that models with mesomorph body-compositions are perceived as more attractive than ectomorphs and endomorphs (Berscheid & Walster, 1974), but there is no evidence that supports that these individuals are more persuasive as attractiveness had no effect on purchase intention. One other significant finding concerning attractiveness is that individuals who practice physical activities as powerlifting, bodybuilding, calisthenics, and cross-fit present rate the models' attractiveness lower than people who practice other sports. Despite there are not statistically significant evidence that these individuals have better body-image perception or self-esteem, the fact that these activities lead to visible transformation on the body might lead to the conclusion that these individuals are more demanding concerning attractiveness standards.

Concerning self-esteem, the absence of effect on purchase intention and the lack of correlation with being exposed to attractive or non-attractive models has led to the rejection of our second hypothesis. Nevertheless, the results reveal that individuals who do not practice sports present lower self-esteem levels, as predicted by Sani and collaborators (2016). Recognizing that

correlation does not imply causality between variables, individuals who follow social media fitness influencers are also individuals who practice physical activities more often, which can suggest the motivational influence exerted by social media fitness influencers (Sokolova & Perez, 2021).

## **5.2 Implications and further research**

The relevance of the present thesis relied on the specificity of the variable studied, since it approached attractiveness as an isolated variable. Much of the research concerning persuasion and social media influencers approaches attractiveness as part of source credibility construct proposed by Ohanian (1990). Furthermore, not much research has been done on the fitness market, specifically concerning the influence that social media agents have on the decisions that consumers make within this growing market.

Despite the lack of effects found in the statistical analysis, the findings of the present thesis remain relevant and contribute with insights for further academic research, to support marketing decisions makers, and to help fitness influencers improving their performance.

Considering and acknowledging the limitations of the present thesis, it has gathered previously developed studies in topics such as consumer behavior, social influence and persuasion, and fitness and found correlations which might help in supporting decision making. One of these findings is that individuals who practice physical activities more frequently are also individuals who have higher levels of self-esteem. Individuals who follow social media fitness influencers are also individuals who practice fitness activities more frequently. Knowing that these correlations exist, brands might be interested in promoting fitness activities with social media fitness influencers. Incentivizing people to practice more physical activities might make individuals feel better and be more open to establish relationships with brands and influencers. The fact that influencer attractiveness does not appear as important for influencer credibility as it was initially formulated, researchers and brands should consider the other components of credibility when thinking about how to optimize influencer influence on customers.

## **5.3 Limitations**

The present research has limitations that should be considered when developing further research on similar topics. Firstly, a larger sample would increase the validity of these results. The recruitment of the participants was done through social media and in a local gym, which might have limited the number of participants. Moreover, the limited sample size and the possible

lack of diversity might not have allowed to accurately capture the views and behaviors of different demographic groups. Future researchers should look forward to increasing the diversity of the sample by collecting answers through more channels.

Secondly, there are some improvements concerning to measurements and variables that should have been included to increase reliability. The goal of this research was to focus specifically on attractiveness, and by doing it other important factors that may influence influencer marketing attractiveness and purchase intention were not considered. For example, the impact of the influencer's personal brand, the relevance of the product to the influencer's audience, or the overall effectiveness of the influencer marketing campaign. Furthermore, the models presented as influencers to participants were only males and having female influencers could have changed the outcome of the experience. The fact that individuals might have perceived that influencer attractiveness was measured might have led to biased answers to the attractiveness scale. These factors may play a significant role in determining the attractiveness and purchase intention of influencer marketing, and not considering them in the analysis can limit the depth and breadth of the findings. For further researchers, I would recommend using the full source credibility scale not only to have information concerning other constructs but also to reduce the possible bias coming from the participants knowing the concepts being studied. Moreover, I recommend expanding the study to female influencers.

The third limitation found was the difficulty in simulating the effects that a real social media influencer would have on participants. Conducting a survey can provide valuable insights and data, but these methods may not fully capture the complexities and nuances of the real-world environment in which influencer marketing takes place. This can limit the relevance and applicability of the findings to real-world situations. To gather results with higher degree of applicability, I suggest that future researchers try to improve the scenario of the experiment by creating a more realistic story behind the influencer.

The fourth limitation of the present thesis was the selection of the images representing each attractiveness condition. Despite the pre-test conducted to assess the perceived attractiveness of the models and to select the images that should be used in the main questionnaire, the individuals on each image were not in similar lightning conditions, same framing or even in the same exact position, what might have impacted the effect that attractiveness had on purchase intention. Future studies should solve this issue by generating sets of images using specialized software that allows to create similar conditions for each image. The possibility to manipulate

the images also represents a great opportunity for exploring other physical traits that might have influence on purchase intention.

The fifth limitation found was the type of product used in the questionnaire. The fitness smartwatch was used under the assumption that participants have no involvement with the product as they might have with other fitness products. For future studies and to ensure that this factor has no implication in the results, I would ask to the participants what their level of involvement with the product is. Having this information in consideration would allow more reliable analysis.

#### **5.4 Conclusions**

Regardless of the results, this thesis has focused on an emerging market that is the fitness market and in a marketing strategy that has generated millions of profits for brands all over the world, the social media influencer marketing. The constant evolution of science, technology, social media platforms and customer desires makes necessary constant research and improvement of the strategies used to persuade consumers. My hope is that this research contributes as a starting point to improve how brands manage their relationships with customers in such an important market.

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## Appendices

### Appendix 1. Sample characteristics

Variable	Categories	N	%
Gender	Male	51	35,4%
	Female	91	64,6%
Age	18-24	92	63,9%
	25-34	44	30,6%
	35-44	5	3,5%
	45-54	1	0,7%
	55 and above	2	1,4%
Country of residence	Portugal	134	93,1%
	Australia	1	0,7%
	Austria	1	0,7%
	Denmark	2	1,4%
	Germany	2	1,4%
	Namibia	1	0,7%
	Netherlands	1	0,7%
	Switzerland	1	0,7%
	United Arab Emirates	1	0,7%
Occupation	Employed full time	68	47,2%
	Employed part time	3	2,1%
	Working student	31	21,5%
	Student	39	27,1%
	Retired	1	0,7%
	Unemployed	2	1,4%
Highest level of education	High school graduate	26	18,1%
	Bachelor	80	55,6%
	Post-graduate	9	6,3%
	Master degree	24	16,7%
	Professional course	5	3,5%
Monthly net income	Less than 750€	41	28,5%
	750€-1000€	47	32,6%
	1001€ - 1500€	35	24,3%
	1501€-2000€	13	9,0%
	2001€-2500€	2	1,4%
	2501€-3000€	4	2,8%
	More than 3000€	2	1,4%

Variable	Categories	N	%
Fitness Activity Frequency	Never	37	25,7%
	1-2 days a week	65	45,1%
	3-4 days a week	33	22,9%
	5-7 days a week	9	6,3%
Most practiced activity	Walking / Running / Cycling	56	38,9%
	Power-lifting / Bodybuilding / Calisthenics / Cross-fit	46	31,9%
	Swimming /Triathlon	3	2,1%
	Football / Basketball / Volleyball	9	6,3%
	Racket Sports	6	4,2%
	Dance / Yoga / Pilates	10	6,9%
	Fighting Sports	1	0,7%
	Other	13	9,0%
Following social media influencers	Yes	92	63,9%
	No	52	36,1%
Fitness items purchase frequency	At least once every year	80	55,6%
	At least once every 6 months	25	17,4%
	At least once every 3 months	15	10,4%
	At least once every monthly	6	4,2%
	At least once every week	2	1,4%
	Other	16	11,1%

## Appendix 2. Survey

### T. SE\_IA\_PI

#### Start of Block: Introduction

Q1 Welcome and thank you for participating in this study.

My name is Francisco de Oliveira Madeira and I am conducting this research as part of my Master's Thesis at Católica Lisbon School of Business and Economics, under the supervision of professor Cristina Mendonça.

This research aims to gain insights for marketing research on individuals connected to fitness activities and their purchase intention of fitness equipment. We estimate this study will take about 5 minutes to complete.

Please answer as honestly as possible. All answers will be kept strictly confidential and anonymous. This means there will be no way to link your responses to your identity. The data collected will be used for research purposes only.

Your participation will contribute to research on the fitness marketing industry. There are no expected side effects of participating in this study. You may stop the study now or at any point after it has begun.

If you have any questions about this study, please send an email to s-fomadeira@ucp.pt.

By continuing you agree to participate.

Thank you!

#### End of Block: Introduction

---

#### Start of Block: Demographics & Psychometric

Q1  
Gender

- Male (4)
  - Female (5)
  - Non-binary / third gender (6)
  - Prefer not to say (7)
-

Q2 Age

- 18-24 (1)
- 25-34 (2)
- 35-44 (3)
- 45-54 (4)
- 55 and above (5)

Q3 What is your current net monthly income?

- Less than 750€ (1)
- 750€-1000€ (2)
- 1001€ - 1500€ (3)
- 1501€-2000€ (4)
- 2001€-2500€ (5)
- 2501€-3000€ (6)
- More than 3000€ (7)



Q5 Highest level of education (completed)

- Middle school (1)
- High school graduate (2)
- Bachelor (3)
- Post-graduate (4)
- Master degree (5)
- Professional course (6)
- Doctorate (7)
- Other (8) \_\_\_\_\_

---

Q6 Occupation

- Employed full time (1)
- Employed part time (2)
- Working student (3)
- Student (4)
- Retired (5)
- Unemployed (6)



Q101 In which country do you currently reside?

▼ Portugal (1) ... Zimbabwe (193)

---

Q19 How often do you practice sports / fitness activities per week?

- Never (1)
  - 1-2 days a week (2)
  - 3-4 days a week (3)
  - 5-7 days a week (4)
- 

Q20 What fitness activity do you practice the most?

- Walking / Running / Cycling (1)
  - Power-lifting / Bodybuilding / Calisthenics / Cross-fit (2)
  - Swimming /Triathlon (3)
  - Football / Basketball / Volleyball (4)
  - Racket Sports (5)
  - Dance / Yoga / Pilates (6)
  - Fighting Sports (7)
  - Other (8) \_\_\_\_\_
- 

Q21 Do you follow any social media influencers that promote fitness activities and/or brands?

- Yes (1)
  - No (2)
  - I do not know (3)
-

Q43 How often do you purchase fitness related items? (for example equipment, accessories, supplements, workout plans...)

- At least once every year (1)
- At least once every 6 months (2)
- At least once every 3 months (3)
- At least once every monthly (4)
- At least once every week (5)
- Other (6) \_\_\_\_\_

End of Block: Demographics & Psychometric

---

Start of Block: Self-Esteem

SE In the following section, you will be asked to think about yourself and answer a set of questions taking your self assessment into consideration.

---

Page Break

---

SE1 I feel that I'm a person of worth, at least on an equal plane with others.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE2 I feel that I have a number of good qualities.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
-

SE3 All in all, I am inclined to feel that I am a failure.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE4 I am able to do things as well as most other people.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE5 I feel I do not have much to be proud of.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE6 I take a positive attitude toward myself.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
-

SE7 On the whole, I am satisfied with myself.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE8 I wish I could have more respect for myself.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE9 I certainly feel useless at times.

- Strongly disagree (1)
  - Somewhat disagree (2)
  - Somewhat agree (3)
  - Strongly agree (4)
- 

SE10 At times I think I am no good at all.

- Strongly disagree (1)
- Somewhat disagree (2)
- Somewhat agree (3)
- Strongly agree (4)

End of Block: Self-Esteem

---

Start of Block: IA\_H/M

IA\_H\_M Next, you will get to read about an influencer and his endorsement of a sports watch. Afterwards, we will present you with a set of questions on your thoughts about the influencer

---

Page Break

---



IA\_H\_M\_Present

This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He shares science-based fitness content with over 2 million consumers through his Instagram channel.

Peter transmits the knowledge acquired from his university education and training experience to his consumers who share his passion for the science behind fitness activities.

With a Bachelor of Science Degree and a Master in Physiology, Peter posts daily tips and tricks to help his consumers to improve their health and physical condition.

Seen as a trustworthy and expert source of information, he also promotes fitness products, as the sports watch he is wearing.

---

Page Break

End of Block: IA\_H/M

Start of Block: IA\_H/M2

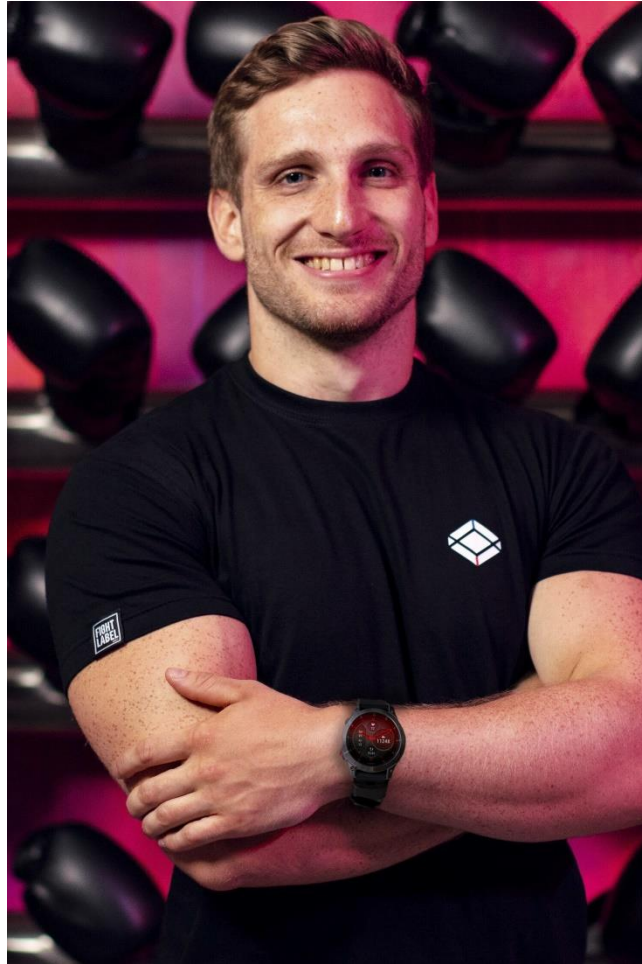
Q103 Next, you will get to read about an influencer and his endorsement of a sports watch. Afterwards, we will present you with a set of questions on your thoughts about the influencer

---

Page Break



Q104



---

Q105 This is Peter Nollan, a professional fitness athlete and a well-known social media influencer. He shares science-based fitness content with over 2 million consumers through his Instagram channel.

Peter transmits the knowledge acquired from his university education and training experience to his consumers who share his passion for the science behind fitness activities.

With a Bachelor of Science Degree and a Master in Physiology, Peter posts daily tips and tricks to help his consumers to improve their health and physical condition.

Seen as a trustworthy and expert source of information, he also promotes fitness products, as the sports watch he is wearing.

---

Page Break

End of Block: IA\_H/M2

Start of Block: IA\_L/M

IA\_L\_M\_Present Next, you will get to read about an influencer and his endorsement of a sports watch. Afterwards, we will present you with a set of questions on your thoughts about the influencer

Page Break

---

IA\_L\_M\_Present



IA\_L\_M\_Present T

This is Peter Nollan, a professional fitness athlete and a well-known social media influencer. He shares science-based fitness content with over 2 million consumers through his Instagram channel.

Peter transmits the knowledge acquired from his university education and training experience to his consumers who share his passion for the science behind fitness activities.

With a Bachelor of Science Degree and a Master in Physiology, Peter posts daily tips and tricks to help his consumers to improve their health and physical condition.

Seen as a trustworthy and expert source of information, he also promotes fitness products, as the sports watch he is wearing.

End of Block: IA\_L/M

---

Start of Block: IA\_L/M2

Q106 Next, you will get to read about an influencer and his endorsement of a sports watch. Afterwards, we will present you with a set of questions on your thoughts about the influencer

Page Break

---

Q107



Q108 This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He shares science-based fitness content with over 2 million consumers through his Instagram channel.

Peter transmits the knowledge acquired from his university education and training experience to his consumers who share his passion for the science behind fitness activities.

With a Bachelor of Science Degree and a Master in Physiology, Peter posts daily tips and tricks to help his consumers to improve their health and physical condition.

Seen as a trustworthy and expert source of information, he also promotes fitness products, as the sports watch he is wearing.

End of Block: IA\_L/M2

---

Start of Block: PI

Q133 Based on the image and description you have just read, please answer the following questions:

-----

PI\_1 I pretend to buy the sports watch

- Strongly disagree (1)
  - Disagree (2)
  - Somewhat disagree (3)
  - Neither agree nor disagree (4)
  - Somewhat agree (5)
  - Agree (6)
  - Strongly agree (7)
- 

PI\_2 It is likely that I will buy the sports watch

- Strongly disagree (1)
  - Disagree (2)
  - Somewhat disagree (3)
  - Neither agree nor disagree (4)
  - Somewhat agree (5)
  - Agree (6)
  - Strongly agree (7)
- 

PI\_3 I am willing to buy the sports watch

- Strongly disagree (1)
  - Disagree (2)
  - Somewhat disagree (3)
  - Neither agree nor disagree (4)
  - Somewhat agree (5)
  - Agree (6)
  - Strongly agree (7)
-

Attention Check 1 This is an attention check. To show you are reading the questions carefully, please select 'Disagree'.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

End of Block: PI

---

Start of Block: IA\_HIGH IA\_M

*Display This Question:*

*If Is Displayed*

IA\_H\_M\_Present



*Display This Question:*

*If This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He... Is Displayed*

IA\_H\_M\_1 Consider your opinion regarding **Peter Nollan**, the influencer presented in the image.

Rate the influencer in the following attributes:

Display This Question:

If Is Displayed

IA\_H\_M1.1

Untractive

Attractive

1 2 3 4 5 6 7

0



Display This Question:

If Is Displayed

IA\_H\_M1.2

Not classy

Classy

1 2 3 4 5 6 7

0



Display This Question:

If Is Displayed

IA\_H\_M1.3

Ugly

Beautiful

1 2 3 4 5 6 7

0



Display This Question:

If Is Displayed

IA\_H\_M1.4

Plain

Elegant

1 2 3 4 5 6 7

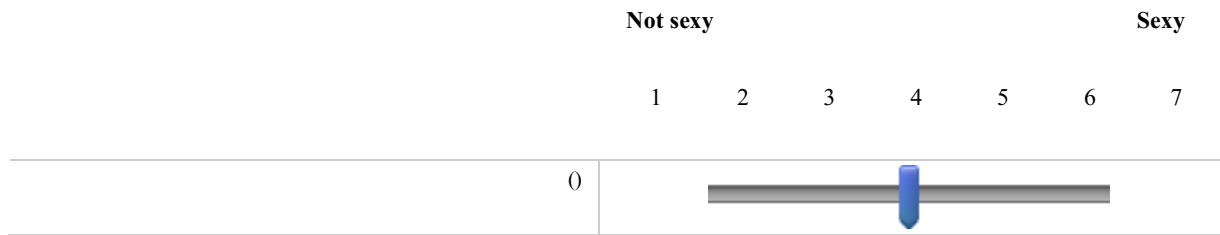
0



Display This Question:

If Is Displayed

IA\_H\_M1.5



End of Block: IA\_HIGH IA\_M

Start of Block: IA\_HIGH IA\_M2

Display This Question:

If Is Displayed

Q117



Display This Question:

If This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He... Is Displayed

Q119 Consider your opinion regarding **Peter Nollan**, the influencer presented in the image.

Rate the influencer in the following attributes:

Display This Question:

If Is Displayed

Q120

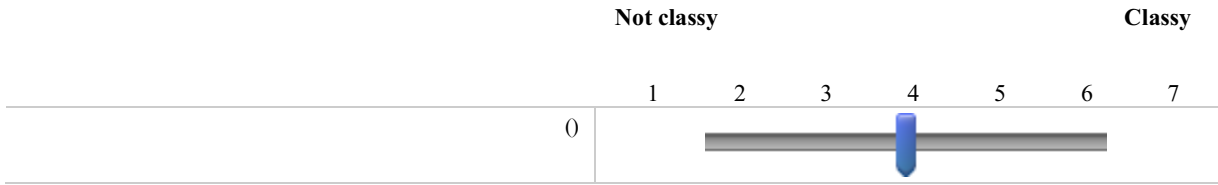




Display This Question:

If Is Displayed

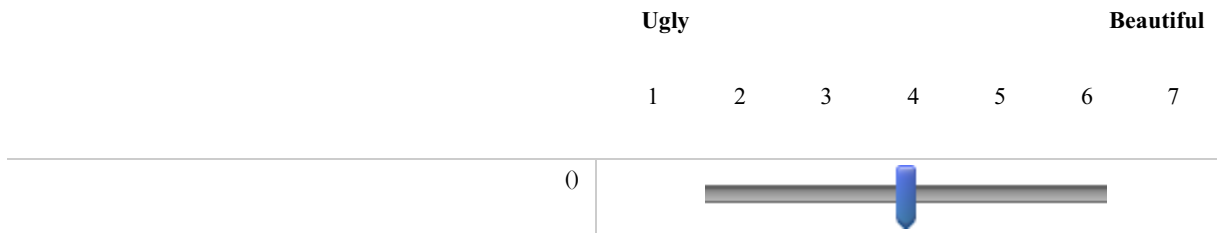
Q121



Display This Question:

If Is Displayed

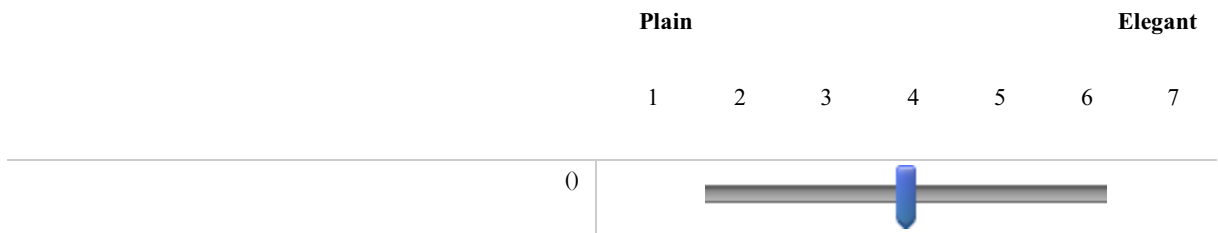
Q122



Display This Question:

If Is Displayed

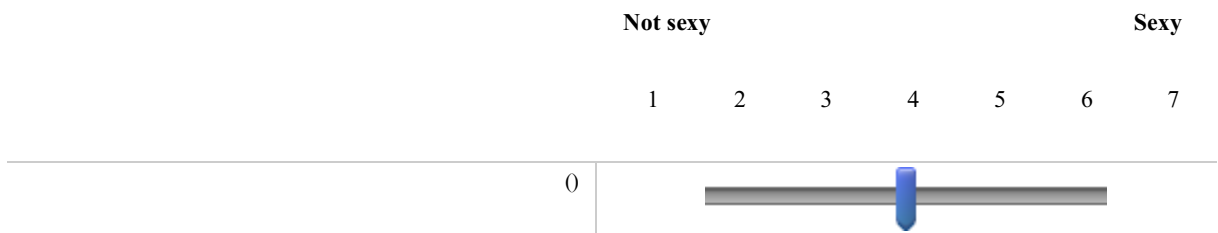
Q123



Display This Question:

If Is Displayed

Q124





End of Block: IA\_HIGH IA\_M2

Start of Block: IA\_LOW IA/M

Display This Question:

If Is Displayed

IA\_L/M\_Present



Display This Question:

If This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He... Is Displayed

IA\_L/M\_Present Consider your opinion regarding **Peter Nollan**, the influencer presented in the image.

Rate the influencer in the following attributes:

Display This Question:

If Is Displayed

IA\_L/M -1.1

Unattractive

Attractive

1 2 3 4 5 6 7

0



Display This Question:

If Is Displayed

IA\_L/M -1.2

Not classy

Classy

1 2 3 4 5 6 7



Display This Question:  
If Is Displayed

IA\_L/M -1.3

Ugly Beautiful

1 2 3 4 5 6 7



Display This Question:  
If Is Displayed

IA\_L/M -1.4

Plain Elegant

1 2 3 4 5 6 7



Display This Question:  
If Is Displayed

IA\_L/M -1.5

Not sexy Sexy

1 2 3 4 5 6 7



End of Block: IA\_LOW IA/M

Start of Block: IA\_LOW IA/M2

Display This Question:  
If Is Displayed

Q125



Display This Question:

If This is Peter Nollan, a professional fitness athlete and a well known social media influencer. He... Is Displayed

Q127 Consider your opinion regarding **Peter Nollan**, the influencer presented in the image.

Rate the influencer in the following attributes:

Display This Question:

If Is Displayed

Q128

Unattractive

Attractive

1 2 3 4 5 6 7



Display This Question:

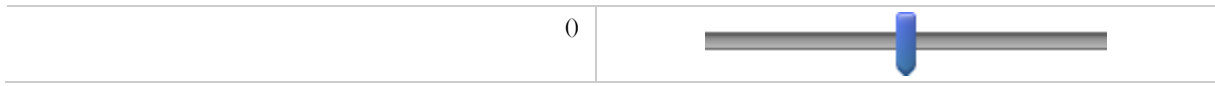
If Is Displayed

Q129

Not classy

Classy

1 2 3 4 5 6 7



Display This Question:

If Is Displayed

Q130

**Ugly**

**Beautiful**

1 2 3 4 5 6 7



Display This Question:

If Is Displayed

Q131

**Plain**

**Elegant**

1 2 3 4 5 6 7



Display This Question:

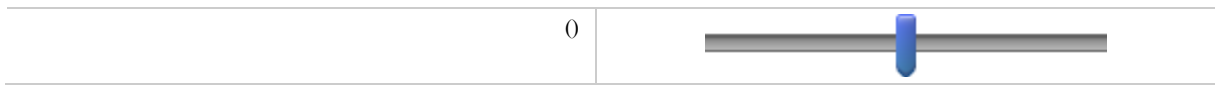
If Is Displayed

Q132

**Not sexy**

**Sexy**

1 2 3 4 5 6 7



End of Block: IA\_LOW IA/M2

Start of Block: Attention

Q98 To finish this survey, please answer this final question.

Attention Do you think you have paid enough attention or do you think it is better not to use the data from your answers?

- I took enough attention. It is safe to use the data from my answers. (1)
- I confess that I didn't pay much attention. It is better not to use the data from my answers. (2)

End of Block: Attention

## Appendix 3. Factor Analysis

### Self-Esteem

<b>Correlation Matrix</b>	I feel that I have a number of good qualities.	All in all, I am inclined to feel that I am a failure.	I am able to do things as well as most other people.	I feel I do not have much to be proud of.	I take a positive attitude toward myself.	On the whole, I am satisfied with myself.	I wish I could have more respect for myself.	I certainly feel useless at times.	At times I think I am no good at all.
I feel that I have a number of good qualities.	1	0.41	0.49	0.45	0.42	0.44	0.161	0.324	0.335
All in all. I am inclined to feel that I am a failure.	0.41	1	0.485	0.591	0.575	0.591	0.419	0.544	0.568
I am able to do things as well as most other people.	0.489	0.485	1	0.419	0.295	0.319	0.275	0.335	0.396
I feel I do not have much to be proud of.	0.45	0.591	0.419	1	0.582	0.588	0.386	0.448	0.422
I take a positive attitude toward myself.	0.422	0.575	0.295	0.582	1	0.755	0.389	0.421	0.434
On the whole. I am satisfied with myself.	0.439	0.591	0.319	0.588	0.755	1	0.478	0.461	0.412
I wish I could have more respect for myself.	0.161	0.419	0.275	0.386	0.389	0.478	1	0.429	0.366
I certainly feel useless at times.	0.324	0.544	0.335	0.448	0.421	0.461	0.429	1	0.675
At times I think I am no good at all.	0.335	0.568	0.396	0.422	0.434	0.412	0.366	0.675	1

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.87	
Bartlett's Test of Sphericity	Approx. Chi-Square	589.38
	df	36
	Sig.	<.001

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total
1	4.628	51.421	51.421	4.628
2	0.978	10.863	62.284	
3	0.913	10.143	72.427	
4	0.668	7.421	79.848	
5	0.501	5.572	85.42	
6	0.43	4.779	90.199	
7	0.34	3.774	93.973	
8	0.315	3.499	97.473	
9	0.227	2.527	100	

Component Score Coefficient Matrix	
	Component 1
I feel that I have a number of good qualities.	0.13
All in all, I am inclined to feel that I am a failure.	0.17
I am able to do things as well as most other people.	0.13
I feel I do not have much to be proud of.	0.17
I take a positive attitude toward myself.	0.17
On the whole, I am satisfied with myself.	0.17
I wish I could have more respect for myself.	0.13
I certainly feel useless at times.	0.16
At times I think I am no good at all.	0.16

## Purchase Intention

<b>Correlation Matrix</b>	I pretend to buy the sports watch	It is likely that I will buy the sports watch	I am willing to buy the sports watch
I pretend to buy the sports watch	1	0.827	0.789
It is likely that I will buy the sports watch	0.827	1	0.83
I am willing to buy the sports watch	0.789	0.83	1

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.762	
Bartlett's Test of Sphericity	Approx. Chi-Square	343.629
	df	3
	Sig.	<.001

<b>Component</b>	<b>Initial Eigenvalues</b>			<b>Extraction Sums of Squared Loadings</b>
	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>
1	2.631157745	87.70525817	87.70525817	2.631157745
2	0.210732676	7.024422545	94.72968071	
3	0.158109579	5.270319286	100	

<b>Component Score Coefficient Matrix</b>	
	Component 1
I pretend to buy the sports watch	0.354
It is likely that I will buy the sports watch	0.36
I am willing to buy the sports watch	0.354

## Attractiveness

Item Recoding		
	Old Variable	New Variable
1st Model High Attractiveness	Attractive x Not-Attractive Classy x Non Classy Beautiful x Ugly Elegant x Plain Sexy x Not Sexy	Attractive_Not-Attractive Classy_NonClassy Beautiful_Ugly Elegant_Plain Sexy_NotSexy
2nd Model High Attractiveness	Attractive x Not-Attractive Classy x Non Classy Beautiful x Ugly Elegant x Plain Sexy x Not Sexy	Attractive_Not-Attractive Classy_NonClassy Beautiful_Ugly Elegant_Plain Sexy_NotSexy
1st Model Low Attractiveness	Attractive x Not-Attractive Classy x Non Classy Beautiful x Ugly Elegant x Plain Sexy x Not Sexy	Attractive_Not-Attractive Classy_NonClassy Beautiful_Ugly Elegant_Plain Sexy_NotSexy
2nd Mode High Attractiveness	Attractive x Not-Attractive Classy x Non Classy Beautiful x Ugly Elegant x Plain Sexy x Not Sexy	Attractive_Not-Attractive Classy_NonClassy Beautiful_Ugly Elegant_Plain Sexy_NotSexy



<b>Correlation Matrix</b>	Attractive_Not-Attractive	Classy_NonClassy	Ugly_Beautiful	Plain_Elegant	NotSexy_Sexy
Attractive x Non-Attractive	1	0.67	0.827	0.508	0.854
Classy_NonClassy	0.67	1	0.64	0.551	0.672
Ugly_Beautiful	0.827	0.64	1	0.516	0.844
Plain_Elegant	0.508	0.551	0.516	1	0.628
NotSexy_Sexy	0.854	0.672	0.844	0.628	1

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.855	
Bartlett's Test of Sphericity	Approx. Chi-Square	555.823
	df	10
	Sig.	<.001

<b>Component Score Coefficient Matrix</b>	
	Component 1
Attractive_Nattractive	0.244877159
NotClassy_Classy	0.220361325
Ugly_Beautiful	0.242732357
Plain_Elegant	0.195545172
NotSexy_Sexy	0.252783375

<b>Component</b>	<b>Initial Eigenvalues</b>			<b>Extraction Sums of Squared Loadings</b>
	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>
1	3.709470106	74.18940212	74.18940212	3.709470106
2	0.5886425	11.77284999	85.96225211	
3	0.403139808	8.062796164	94.02504828	
4	0.173263418	3.465268359	97.49031664	
5	0.125484168	2.509683364	100	

## Appendix 4. Bivariate Correlations

Variable Recoding			
Original Variables	Code	New variable	Code
1st Model - High Attractiveness	1	Model Attractiveness	1
2nd Model - High Attractiveness	1		2
1st Model - Low Attractiveness	1		3
2nd Model - High Attractiveness	1		4

Dummy Creation						
Original Variables	Original Categories	Code	New variable	New Categories	Code	
Model Attractiveness	1st Model - High Attractiveness	1	Model Attractiveness_Dummy	High Attractiveness	0	
	2nd Model - High Attractiveness	2				
	1st Model - Low Attractiveness	3		Low attractiveness	1	
	2nd Model - High Attractiveness	4				
Model Attractiveness_Order	1st Model - High Attractiveness	1	Model Attractiveness_Order_Dummy	First Models	0	
	2nd Model - High Attractiveness	3		Second Models		1
	1st Model - Low Attractiveness	2				
	2nd Model - High Attractiveness	4				
Frequency of physical activities	Never	1	5-7 times per week x Never	5-7 times per week	0	
	1-2 times per week	2		Never	1	
	3-4 times per week	3	5-7 times per week x 1-2 times per week	5-7 times per week	0	
	5-7 times per week	4		1-2 times per week	1	
				5-7 times per week x 3-4 times per week	5-7 times per week	0
					3-4 times per week	1
Fitness items purchase frequency	At least once every year	1	At least monthly vs At least once every year	At least monthly	0	
	At least once every 6 months	2		At least once every year	1	
	At least once every 3 months	3	At least monthly vs At least once every 6 months	At least monthly	0	
	At least monthly	4		At least once every 6 months	1	
				At least monthly vs At least once every 3 months	At least monthly	0
					At least once every 3 months	1
Most practiced physical activities	Walking / Running / Cycling	1	Others vs Walking / Running / Cycling	Others	0	
	Powerlifting / Bodybuilding / Calisthenics / Cross-fit	2		Walking / Running / Cycling	1	
	Others	3		Others	0	

		Others vs Powerlifting / Bodybuilding / Calisthenics / Cross-fit	Powerlifting / Bodybuilding / Calisthenics / Cross-fit	1

Pearson Correlation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1-Purchase Intention		.117	.119	-.02	.002	<b>.299</b>	-.09	.056	0	.138	-.069	.112	.006	-.045	<b>-.165</b>
2-Attractiveness			-.064	<b>-.715</b>	-.066	.083	-.056	.098	-.025	<b>.181</b>	<b>-.183</b>	<b>.185</b>	-.034	-.079	-.024
3- Self-Esteem				.046	.039	0	<b>-.176</b>	.059	.078	-.047	.001	.002	-.026	.024	.029
4- Attractive vs Non attractive					-.014	-.149	-.056	-.11	.141	<b>-.268</b>	<b>.229</b>	<b>-.211</b>	.012	.154	-.039
5- First vs Second Model						.044	-.079	<b>.237</b>	<b>-.248</b>	-.085	-.06	.028	-.018	.068	.029
6- Gender							<b>.170</b>	-.058	-.08	.144	-.053	.097	-.006	<b>-.175</b>	<b>-.169</b>
7- 5-7 times vs Never								<b>-.533</b>	<b>-.321</b>	.118	-.13	.046	-.144	-.148	<b>.187</b>
8- 5-7 times vs 1-2 times									<b>-.495</b>	.021	-.083	<b>.193</b>	.026	-.081	.102
9- 5-7 times vs 3-4 times										-.13	<b>.229</b>	<b>-.211</b>	<b>.186</b>	.03	<b>-.272</b>
10- Other Sports vs Walking, Running...											<b>-.547</b>	<b>.255</b>	-.065	<b>-.179</b>	-.007
11- Other Sports vs Powerlifting, Bodybuilding...												-.137	.079	.059	<b>-.174</b>
12- At least monthly vs Yearly													<b>-.512</b>	<b>-.381</b>	.032
13- At least monthly vs Every six months														-.156	-.077
14- At least monthly vs Every three years															-.067
15- Do you follow any social media influencers that promote fitness activities and/or brands?															

All the correlations in bold are statistically significant (p < 0.05)