



## Psychometric Validation of the Passive and Active Use Measure (PAUM) for Facebook and Instagram among a Portuguese Sample

Liliana Mendes<sup>a\*</sup>, Levi Leonido<sup>b,c\*\*</sup>, Natércia Pereira<sup>d\*\*\*</sup>,  
Elsa Gabriel Morgado<sup>e,f\*\*\*\*</sup>

<sup>a</sup> University of Coimbra, Coimbra Institute for Biomedical Imaging and Translational Research – CIBIT, Coimbra, Portugal

<sup>b</sup> University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

<sup>c</sup> Catholic University of Portugal, Center for Research in Science and Technology of the Arts, Porto, Portugal

<sup>d</sup> University of Coimbra, Master 's Degree Student at Faculty of Psychology and Education Sciences, Coimbra, Portugal

<sup>e</sup> Center for Studies in Education and Innovation (CI&DEI) Polytechnic Institute of Viseu, Viseu, Portugal

<sup>f</sup> Polytechnic Institute of Bragança, Bragança, Portugal

**Introduction.** The advent of social media has fundamentally transformed how people interact, bridging the divide between passive digital consumption and active engagement. **Objective.** This study aims to validate the Passive and Active Use Measure (PAUM) for Facebook and Instagram in a Portuguese sample, exploring distinct interaction modes encompassing *Active Social*, *Active Non-social*, *Active*, and *Passive*. **Methods.** Two descriptive, cross-sectional, and quantitative studies were conducted, involving a total of 606 participants ( $N=198$  for study 1,  $N=408$  for study 2), spanning ages 17 to 67. **Results.** The factor structure of both scales was analyzed, as well as their convergent and discriminant validity and reliability. Both scales—PAUM-Facebook (study 1) and PAUM-Instagram (study 2)—demonstrated robust factorial structures, underscored by sound validity and reliability indicators. Comprising ten and seven items, respectively, these scales are organized into two dimensions: *Active* and *Passive*. **Conclusion.** This study establishes that the PAUM instruments possess strong psychometric properties, rendering them valuable

Correspondence: Liliana Mendes, [liliana.mendes@icnas.uc.pt](mailto:liliana.mendes@icnas.uc.pt)

\* <https://orcid.org/0000-0002-7938-6166>

\*\* <https://orcid.org/0000-0001-6603-034X>

\*\*\* <https://orcid.org/0009-0005-3084-7282>

\*\*\*\* <https://orcid.org/0000-0002-3653-7876>

This study received ethical approval from The Ethics Committee of the University of Trás-os-Montes and Alto Douro (Doc61 – CEUTAD-2022).

tools for evaluating Facebook and Instagram usage patterns in Portuguese populations, with broader applicability in future research within the field of psychology.

*Keywords:* social media, Instagram; Facebook; active use, passive use, Portuguese sample

## Introduction

The rapid evolution of the internet and the widespread use of social media have sparked considerable interest in the scientific community. Social media platforms, fuelled by the proliferation of smartphones and easy access, have become integral to people's lives. They offer a streamlined means of communication, connecting individuals with both known and unknown peers, carrying associated benefits and risks of use (Valkenburg & Piotrowski, 2017). This shift from more passive digital interactions to active engagement, particularly among youth, has been transformative (Brandtzæg, 2016).

Eurostat Data from 2020 revealed that within the European Union, 54% of individuals aged 16 to 74 were social media users, a number on the rise. Notably, 86% of young adults aged 16 to 24 used social media, compared to 18% of those aged 65 to 74 (Eurostat, 2020). Portugal, in the same age range (16 to 74), reported that 80% of its population were social media users in 2019 (Instituto Nacional de Estatística, 2019), primarily on platforms like Facebook and Instagram, which remained highly popular in 2021 (Grupo Marktest, 2021).

Facebook, established in 2004, boasts a staggering 2.93 billion monthly active users, making it the world's most widely used social media platform (Statista Search Department, 2022a). Instagram, introduced in 2012 and continually expanding, had approximately 1.21 billion monthly active users in 2021, securing its place as the fourth most popular social media platform globally (Statista Search Department, 2022b). These platforms enable users to engage in various activities, such as posting photos and videos, tagging others, creating events, observing other's activities, and engaging through reactions like "likes" and comments (active behavior). Alternatively, users may choose not to react or comment (passive behavior), among other possibilities. Consequently, users of these social media are encouraged to participate in response to the content they encounter. However, these platforms vary in terms of the perceived virtual social presence or the realism of interactions. Notably, Instagram, which focuses on images and their enhancement through filters, offers a high level of social presence simulation. In contrast, Facebook, while incorporating image elements, includes text components, resulting in a lower level of social presence simulation (Pittman & Reich, 2016).

While recent literature reviews and meta-analyses indicate the potential risks associated with excessive use of social media, particularly in more vulnerable individuals, such as a correlation with higher levels of depression

and anxiety symptoms, it is important to acknowledge the sense of community fostered by social media, including platforms like Facebook and Instagram. They facilitate social interaction and provide a peer support network, which can be counted among the significant benefits for users' mental health (e.g., Karim et al., 2020; Naslund et al., 2020; Ulvi et al., 2022; Valkenburg, 2022). Additionally, the time spent using social media has been associated with higher levels of happiness (Liu et al., 2019). It appears that a more active pattern of social media use, combined with the concept of "social capital" (the benefits derived from social media) and feelings of social connectedness, predict subjective well-being or have a positive impact on mental health (Verduyn et al., 2017, 2021). However, much of the research has predominantly focused on Facebook, leaving a dearth of studies on platforms like Instagram and variations in usage patterns, such as *Active* versus *Passive* engagement (de Vries et al., 2018). Further exploration of these aspects is needed to provide a comprehensive understanding of the impact of social media on individuals' well-being and behavior.

### **Use of social media—*Active* vs *Passive***

Despite the multiple definitions of social media that have emerged in the last decade, the authors Carr and Hayes (2015) present a reformulation of the concept as being "internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others" (pp.50) of which Facebook and Instagram form an integral part. This means that the user can interact from a distance how, when and with whomever they want. However, what distinguishes a more *Active* social media interaction from a *Passive* one?

Verduyn et al. (2015, 2017, 2021) propose a distinction between *Active* and *Passive* use of social media. *Active* use involves direct communication with others, such as commenting on posts, reacting, sending private messages, and engaging in interactive exchanges. On the other hand, *Passive* use refers to behaviors such as monitoring other people's lives, browsing profiles, reading messages, and consuming information or news without actively engaging or interacting with the content owners. This differentiation is crucial because a recent meta-analysis study by Liu et al. (2019) demonstrates that *Active* use of social media has a positive impact on users' psychological well-being. This is attributed to social interaction with others, shared online entertainment, and the ability to share favorite content. In contrast, *Passive* use of social media, characterized by content consumption or mere navigation without social interaction, has been found to have a negative influence on psychological well-being (Liu et al., 2019). It is associated with feelings of envy or inferiority towards other users (Verduyn et al., 2021). These findings are consistent with previous studies that indicate *Passive* use of social media as a predictor of reduced subjective well-being (Verduyn et

al., 2017), specifically in terms of life satisfaction (Krasnova et al., 2013; Kross et al., 2013) and emotional well-being (Verduyn et al., 2015) among young adults. Furthermore, *Passive* use of social media has been positively linked to increased symptoms of depression (Escobar-Viera et al., 2018). In the adolescent population, another study supports the relationship between *Passive* use of social media and heightened anxiety and depressed mood, while *Active* use is associated with a reduction in these symptoms (Thorisdottir et al., 2019).

In a study conducted by Kingsbury et al. (2021), the authors investigated different types of interactions (*Active* vs. *Passive*; *Private* vs. *Public*) on social media and their associations with suicidal behaviors and non-suicidal self-injurious behaviors among university students aged 18 to 25 years. The findings of the study revealed interesting patterns. According to the authors, *Active Public Social* use, such as posting a photo on the newsfeed, was associated with an increased likelihood of non-suicidal self-injurious thoughts and behaviors as well as suicide attempts. In contrast, the study found that *Active Private Social* use, such as engaging in individual or group conversations with friends; *Passive Non-social* use, such as reading the news; and *Active Non-social* use, such as using social media for academic purposes, were associated with a reduced likelihood of engaging in these self-harming behaviors.

Gerson et al. (2017) devised and validated the Passive and Active Facebook Use Measure (PAUM), exploring its correlation with the Reinforcement Sensitivity Theory of personality. The instrument encompasses three factors: *Active Social* (e.g., commenting on photos), *Active Non-social* (e.g., organizing or responding to event invitations), and *Passive* (e.g., observing others' activities).

This questionnaire was later modified to assess different types of Instagram usage (*Active* vs. *Passive*), and a positive association was discovered between *Active* use, self-esteem, and well-being among a sample of college students (Trifiro & Prena, 2021). Additionally, more active users on this social media (those with higher scores on the Instagram Intensity Scale) report higher levels of self-esteem and well-being (Trifiro & Prena, 2021). In another recent study, which also employed the PAUM, researchers examined the *Active* and *Passive* use of the popular social media platforms Facebook and Instagram and their impact on college students' life satisfaction. The findings revealed that *Active* use of both social media platforms enhances life satisfaction due to the perceived social support, while *Passive* use, particularly on Instagram, contributes to negative social comparison (e.g., feeling that others experience better lifestyles) and reduces subjective well-being (Choi, 2022).

During the COVID-19 pandemic and the period of confinement, a study conducted by Masciantonio et al. (2021) examined the impact of both *Active* and *Passive* use, as measured by the PAUM, on various social media platforms (Facebook, Instagram, Twitter, TikTok). The study assessed its effects on well-being, life dissatisfaction, positive effects (e.g., optimism, hope), and negative

effects (e.g., anger, frustration) in a sample of 793 individuals aged 18 to 77 years. The findings reveal a negative association between *Passive* use of Facebook and subjective well-being, with upward social comparison acting as a mediator. In contrast, *Active* use of Instagram is positively correlated with subjective well-being, including life satisfaction, and this relationship is mediated by social support. Notably, *Active* Facebook use and social support are positively linked to negative effects, potentially attributed to emotional reactivation during user interactions. Concerning Twitter, *Active* use is associated with greater social support, while *Passive* use is linked to reduced upward social comparison. Interestingly, no significant associations were found between TikTok and well-being, social support, or upward social comparison, regardless of whether the interactions were *Active* or *Passive* (Masciantonio et al., 2021).

However, it is important to exercise caution when analyzing the hypotheses regarding the impact of time spent in dichotomous *Active* vs. *Passive* interactions on the subjective well-being and mental health of social media users (Coyne et al., 2020; Valkenburg, 2022). Valkenburg et al. (2022) offer valuable insights, highlighting that private and public interactions differ and, as such, have distinct consequences for users' well-being. Additionally, the *Passive* vs. *Active* hypothesis fails to account for the intricacies of communication theories, as there are numerous psychological processes at play in social media interactions (e.g., envy, inspiration, among others) that can either enhance or diminish well-being.

Nonetheless, we do not dismiss the importance of studying the various types of *Active Social/Non-social*, *Public/Private*, and *Passive* social media interactions. Such an approach can contribute to a better understanding of the multifaceted nature of interactions within this communication medium and their potential influence on users' well-being.

## Objectives

Given the limited number of studies examining the relationship between the popular social media platforms Facebook and Instagram and their impact on the well-being of Portuguese users, there is a clear need for further research in this area. Additionally, there is a lack of validated evaluation tools specifically tailored to the Portuguese cultural context. Consequently, it is essential to develop and validate a *Passive and Active Use Measure (PAUM)* for Facebook and Instagram in Portugal. The validation of such a measure can offer several potential benefits. Firstly, Portuguese researchers will have an assessment instrument that captures various aspects of interactions on these social media platforms, including *Active Social/Non-social* and *Passive* use. This measure can be utilized in a diverse population, allowing for correlations with other psychological dimensions or factors such as self-esteem, subjective well-being, personality traits, and more. This study, although not explicitly involving

participants with disabilities, has significant implications for special education and rehabilitation professionals. Understanding the diverse ways individuals engage with social media can inform strategies for social integration, emotional support, and cognitive engagement for people with disabilities. For instance, insights from PAUM could help educators and therapists tailor social media use to enhance communication skills, provide social validation, and improve overall well-being among individuals with disabilities.

Based on the rationale provided above, the study aims to investigate and establish the psychometric properties of the PAUM for both Facebook and Instagram in the context of Portuguese social media users. This includes examining the validity of the measure (i.e., whether it effectively captures the intended constructs) and its reliability (i.e., the consistency and stability of measurement). The study seeks to address the need for a comprehensive and robust evaluation tool specifically tailored to the Portuguese cultural context and the user base of these popular social media platforms.

### **Study 1: Evaluation of the validity and reliability of PAUM-Facebook**

The aim of Study 1 is to assess the validity and reliability of Passive and Active Facebook Use Measure- PAUM-Facebook, which reflects three factors of interaction conceived on this social media: *Active Social*, *Active Non-social*, and *Passive*.

## **Method**

### **Type of study**

This study adopts a cross-sectional design that is quantitative, comparative, descriptive, and correlative in nature.

### **Participants and sampling**

The initial dataset included 207 participants, selected through a non-probabilistic random recruitment method conducted online. To be eligible for inclusion, participants had to meet specific criteria: they needed to be late adolescents (aged 17) or older, be proficient in reading and writing Portuguese, be Facebook users, have voluntary participation, and be able to provide informed consent. Participants failing to meet these criteria were excluded from the study. Seven participants were excluded for being under 21 years old, and an additional two were excluded as statistical outliers. This resulted in a final sample size of 198 participants, aged between 21 and 66 years ( $M = 45.23$ ,  $SD = 10.61$ ), with 70.2% ( $n = 139$ ) being female.

## Instruments

To develop the PAUM-Facebook in the Portuguese version, we were inspired by the original Passive and Active Facebook Use Measure by Gerson et al. (2017). The translation and back-translation of the PAUM-Facebook in the Portuguese version, accepted by the authors (Gerson et al., 2017), is presented on a Likert-type scale, ranging from 1 to 5, where 1 corresponds to “Never (0%),” the behavior never occurs; 2 to “Rarely (25%),” the behavior occurs 25% of the time; 3 to “Sometimes (50%),” the behavior occurs 50% of the time; 4 to “Somewhat frequently (75%),” the behavior occurs 75% of the time; and 5 to “Very frequently (100%),” the behavior occurs all the time.

Table 1 presents the version used in this study, which resulted from the translation and back-translation of the PAUM-Facebook into Portuguese. Furthermore, items 6, 8, 11, and 12<sup>1</sup> were updated in accordance with the instructions and recommendations of Trifiro and Gerson (2019), such as identifying similar behaviors across platforms. This ensures the measure is not limited to a single platform’s unique features and helps to define universal behaviors that transcend specific platform features like likes, reactions, or stories and adaptability to platform changes. By ensuring the measure could encompass these changes, its relevance over time was maintained.

**Table 1**

*Passive and Active Use Measure – Facebook*

---

|     |                                                                                                      |
|-----|------------------------------------------------------------------------------------------------------|
| 1.  | Posting status updates.                                                                              |
| 2.  | Commenting (statuses, posts, photos, etc.).                                                          |
| 3.  | Chatting on Facebook Messenger.                                                                      |
| 4.  | See what someone has been doing.                                                                     |
| 5.  | Creating an event or respond to an event invitation.                                                 |
| 6.  | Posting photos or stories.                                                                           |
| 7.  | Tagging people in photos.                                                                            |
| 8.  | Viewing photos and videos in the newsfeed or stories.                                                |
| 9.  | Posting videos.                                                                                      |
| 10. | Tagging people in videos.                                                                            |
| 11. | Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            |
| 12. | Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). |
| 13. | Looking through my friends’ profiles.                                                                |

---

Scoring is conducted by summing the responses for all items, categorized as follows: *Active Social* (items 1, 2, 3, 6, 12), *Active non-social* (items 5, 7, 9, 10), and *Passive* (items 4, 8, 11, 13).

---

1 In their article, Gerson et al. (2017) present the following items related to the original Passive Active Use Measure (PAUM)-Facebook: 6 – *Posting photos*; 8 – *Viewing photos*; 11 – *Browsing the newsfeed passively (without liking or commenting on anything)*; 12 – *Browsing the newsfeed actively (liking and commenting on posts, pictures, and updates)*.

Guidance for completing the questionnaire was as follows: “How frequently do you perform the following activities when you are on Facebook? (Note: Choosing “Very Frequently” means that about 100% of the time you log on to Facebook, you perform that activity).

## Procedures

Permission to use the questionnaire (PAUM – Facebook) was sought from the original scale authors (Gerson et al., 2017). Once authorization was obtained, the process of developing the Portuguese version of PAUM followed pattern and back-translation protocols (Bolaños-Medina & González-Ruiz, 2012). All 13 items of the original questionnaire underwent a preliminary translation from English into Portuguese by an official translator, followed by a back-translation from Portuguese into English conducted by an experienced bilingual psychologist for comparative purposes. Subsequently, after comparing the translated and back-translated versions of the PAUM – Facebook questionnaire, a final Portuguese version was established. This questionnaire was initially distributed to 10 Facebook users to further refine the items under study, thereby enhancing the validity of the newly translated questionnaire. All the items were presented to the participants in a random order.

Data collection spanned a period of 5 months, from October 2022 to March 2023. The questionnaire was distributed through a Google Forms survey specifically created for this purpose. The study was promoted, and the survey link was disseminated on various social media platforms, including Instagram, Facebook, Twitter, WhatsApp, and Discord. Upon accessing the link, participants were presented with informed consent information to ensure adherence to ethical principles in research, including anonymity and data privacy. A sociodemographic questionnaire was also distributed. Additionally, participants had access to the researcher’s email for any clarifications, questions, or requests for further information about the study. On average, each participant took approximately 5 minutes to complete the form. It is important to note that no rewards or incentives were provided to study participants.

This study received ethical approval from The Ethics Committee of the University of Trás-os-Montes and Alto Douro (Doc61 – CEUTAD-2022).

## Data analysis

Data analysis was conducted using IBM SPSS version 23 and AMOS version 26.

Before conducting the data analysis, we assessed the univariate normality of the 13 items on the scale and examined the presence of outliers in the dataset. Regarding the normality analysis, we observed that no item exhibited absolute asymmetry and kurtosis values exceeding 3 and 8, respectively, as recommended by Kline (2011). This suggests that the data approximated a normal distribution. For the outlier analysis, we computed a standardized score for the scale by summing the scores of the 13 items.

Participants with scores greater than  $\pm 3$  standard deviations were identified as outliers, following the criteria proposed by Hair et al. (2019). Consequently, two outliers were detected and subsequently removed from the sample.

To examine the factor structure of the scale, we performed an exploratory factor analysis with Varimax rotation, followed by a confirmatory factor analysis utilizing the maximum likelihood estimation method. In the exploratory factor analysis, considering the sample size in this study, we regarded communality values below .50 and factor loading values less than .40 as low, indicating the potential exclusion of the variable, in accordance with the guidelines of Field (2017) and Hair et al. (2019). Additionally, we verified certain assumptions for this analysis, specifically ensuring a KMO value exceeding .50 and a statistically significant Bartlett's test, as recommended by Field (2017). Prior to conducting the confirmatory factor analysis, we assessed common method bias using Harman's one-factor test, following Fuller et al. (2016). The results indicated that this criterion was satisfied, as the total variance explained by a single factor (33.58%) fell below the recommended threshold of 50% outlined by Podsakoff et al. (2003), suggesting an absence of common method bias. Several indicators were employed to assess the quality of model fit, including the  $\chi^2/\text{df}$  (chi-square ratio for degrees of freedom), GFI (Goodness of Fit Index), CFI (Comparative Fit Index), TLI (Tucker Lewis Index), and RMSEA (Root Mean Square Error of Approximation). Model fit was considered acceptable when the  $\chi^2/\text{df}$  value fell within the range of 1 to 3, following Bollen (1989). Additionally, CFI, TLI, and GFI values exceeding .90, as recommended by Blunch (2012) and Kline (2011), and RMSEA values less than .08, in line with Hair et al. (2019), were used as criteria for a good fit.

For assessing reliability, both the CR (Composite Reliability) and Cronbach's alpha ( $\alpha$ ) were computed, with a value greater than .70 considered indicative of adequate internal consistency, as advocated by Field (2017), Fornell and Larcker (1981), and Hair et al. (2019).

Convergent validity was examined by analyzing the factor weights and calculating the AVE (Average Variance Extracted), with a recommended threshold of .50, following Hair et al. (2019).

To evaluate discriminant validity, we applied the Fornell and Larcker (1981) criterion, which necessitates the square root of the AVE to be greater than the correlation between constructs.

## Results

### Descriptive analysis

Table 2 presents the descriptive statistics regarding the 13 PAUMF items. All items present mean scores below the theoretically medium point of the scale (3), except for items 8 and 11, which present higher mean scores. All skewness values were below |3.0| and kurtosis below |8.0|, suggesting a normal distribution.

**Table 2**

*Descriptive statistics regarding PAUMF items (N = 198)*

| Item                                                                                                          | <i>M (SD)</i> | Min-Max | Skewness | Kurtosis |
|---------------------------------------------------------------------------------------------------------------|---------------|---------|----------|----------|
| PAUMF1. Posting status updates.                                                                               | 2.15 (1.02)   | 1-5     | 1.01     | .91      |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | 2.65 (.88)    | 1-5     | .52      | -.10     |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | 2.80 (1.78)   | 1-5     | .20      | -.82     |
| PAUMF4. See what someone has been doing.                                                                      | 2.48 (.91)    | 1-5     | .38      | -.02     |
| PAUMF5. Creating an event or respond to an event invitation.                                                  | 2.04 (.81)    | 1-5     | .81      | 1.21     |
| PAUMF6. Posting photos or stories.                                                                            | 2.60 (.94)    | 1-5     | .44      | -.28     |
| PAUMF7. Tagging people in photos.                                                                             | 2.06 (.93)    | 1-5     | .49      | -.52     |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | 3.21 (.97)    | 1-5     | .21      | -.62     |
| PAUMF9. Posting videos.                                                                                       | 1.96 (.82)    | 1-5     | .69      | .45      |
| PAUMF10. Tagging people in videos.                                                                            | 1.75 (.81)    | 1-4     | 1.01     | .67      |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | 3.13 (.97)    | 1-5     | .07      | -.36     |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | 2.98 (1.00)   | 1-5     | .07      | -.67     |
| PAUMF13. Looking through my friends' profiles.                                                                | 2.26 (.85)    | 1-5     | .54      | .30      |

### Factorial structure analysis

An exploratory factor analysis was initially conducted, extracting three factors as recommended by Gerson et al. (2017). In this analysis, these three factors collectively accounted for 56.82% of the total explained variance (Table 3). It was observed, however, that item 5 exhibited a notably low communality value (.267) and a factor loading below .50, indicating the need for its exclusion. Furthermore, it was evident that only the third factor, corresponding to the *Passive* construct, closely resembled the structure proposed by the original authors of the PAUM (Gerson et al., 2017), consisting of items 4, 8, 11, and 13. In contrast, the second factor contained only two items (items 7 and 10), suggesting some overlap between the items of the first and second constructs (*Active Social* and *Active Non-social*).

**Table 3**

*Exploratory Factorial Analysis Results of the PAUMF 13 items, with three factor solution (N = 198)*

| Item                                                                                                          | Factor 1    | Factor 2    | Factor 3    |
|---------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| PAUMF6. Posting photos or stories.                                                                            | <b>.837</b> | .125        |             |
| PAUMF1. Posting status updates.                                                                               | <b>.801</b> | .270        |             |
| PAUMF9. Posting videos.                                                                                       | <b>.774</b> | .121        |             |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | <b>.711</b> | .212        | .306        |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | <b>.601</b> | .340        | .278        |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | <b>.463</b> | .349        |             |
| PAUMF10. Tagging people in videos.                                                                            |             | <b>.791</b> | .108        |
| PAUMF7. Tagging people in photos.                                                                             | .271        | <b>.790</b> | .137        |
| PAUMF5. Creating an event or respond to an event invitation.                                                  | .270        | <b>.440</b> |             |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | -.160       | -.112       | <b>.697</b> |
| PAUMF4. See what someone has been doing.                                                                      | .243        | .272        | <b>.694</b> |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .418        |             | .667        |
| PAUMF13. Looking through my friends' profiles.                                                                | .208        | .286        | <b>.524</b> |
| % explained variance                                                                                          | 26.74       | 15.37       | 14.71       |

*Note.* Factor loadings below .10 omitted; highest factor loading for each item in bold.

After removing item 5, a subsequent exploratory factor analysis resulted in the three factors explaining 60.12% of the total variance (Table 4). Notably, this revision left factor 3 with only two items (7 and 10).

**Table 4**

*Exploratory Factorial Analysis Results of the PAUMF 12 items, with three factor solution (N = 198)*

| Item                                                                                                          | Factor 1    | Factor 2    | Factor 3    |
|---------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| PAUMF6. Posting photos or stories.                                                                            | .843        |             |             |
| PAUMF1. Posting status updates.                                                                               | .813        |             | .247        |
| PAUMF9. Posting videos.                                                                                       | .775        |             |             |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | <b>.721</b> | .303        | .185        |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | <b>.618</b> | .279        | .305        |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | .481        |             | .335        |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | -.178       | <b>.699</b> |             |
| PAUMF4. See what someone has been doing.                                                                      | .257        | <b>.696</b> | .254        |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .414        | <b>.669</b> |             |
| PAUMF13. Looking through my friends' profiles.                                                                | .229        | <b>.518</b> | .278        |
| PAUMF10. Tagging people in videos.                                                                            | .104        |             | .855        |
| PAUMF7. Tagging people in photos.                                                                             | .316        | .133        | <b>.760</b> |
| % explained variance                                                                                          | 29.49       | 15.86       | 14.77       |

*Note.* Factor loadings below .10 omitted; highest factor loading for each item in bold.

The confirmatory factor analysis, which considered the three factors suggested by Gerson et al. (2017) and initially included all the items (Table 5), revealed model fit indicators with values falling below the recommended thresholds:  $\chi^2(62) = 169.19$ ,  $p < .001$ ,  $\chi^2/df = 2.73$ , CFI = .874, GFI = .883, TLI = .842, and RMSEA = .094. Additionally, it was observed that items 5 and 11 had lower standardized coefficients ( $\lambda = .380$  and  $.214$ , respectively). Furthermore, a strong correlation was identified between the *Active Social* and *Active Non-social* factors (.97), raising concerns about discriminant validity. As a result, the decision was made to consolidate these two factors, resulting in a revised model comprising two factors: *Active* and *Passive*.

**Table 5**

*Confirmatory Factorial Analysis Results of the PAUMF 13 items, with three-factor model (N = 198)*

| Constructs/ Indicators                                                                                        | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active Social</i>                                                                                          |                        |          |
| PAUMF1. Posting status updates.                                                                               | .808                   |          |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | .762                   | 11.40*** |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | .507                   | 7.07***  |
| PAUMF6. Posting photos or stories.                                                                            | .754                   | 11.26*** |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | .693                   | 10.15*** |
| <i>Active Non-Social</i>                                                                                      |                        |          |
| PAUMF5. Creating an event or respond to an event invitation.                                                  | .380                   |          |
| PAUMF7. Tagging people in photos.                                                                             | .584                   | 4.61***  |
| PAUMF9. Posting videos.                                                                                       | .715                   | 4.91***  |
| PAUMF10. Tagging people in videos.                                                                            | .427                   | 4.01***  |
| <i>Passive</i>                                                                                                |                        |          |
| PAUMF4. See what someone has been doing.                                                                      | .782                   |          |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .621                   | 7.04***  |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | .214                   | 2.62**   |
| PAUMF13. Looking through my friends' profiles.                                                                | .602                   | 6.89***  |

\*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

A subsequent exploratory factor analysis was conducted, necessitating the extraction of two factors, which collectively explained 48.46% of the total variance (Table 6). Items 5 and 10 exhibited communality values below .50 (.206 and .229, respectively) and factor loadings also below .50 (.452 and .442, respectively), leading to their exclusion.

**Table 6**

*Exploratory Factorial Analysis Results of the PAUMF 13 items, with two-factor solution (N = 198)*

| Item                                                                                                          | Factor 1    | Factor 2    |
|---------------------------------------------------------------------------------------------------------------|-------------|-------------|
| PAUMF1. Posting status updates.                                                                               | <b>.824</b> | .116        |
| PAUMF6. Posting photos or stories.                                                                            | .785        |             |
| PAUMF9. Posting videos.                                                                                       | .729        |             |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | <b>.707</b> | .327        |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | <b>.675</b> | .312        |
| PAUMF7. Tagging people in photos.                                                                             | <b>.618</b> | .214        |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | <b>.570</b> | .120        |
| PAUMF5. Creating an event or respond to an event invitation.                                                  | .452        |             |
| PAUMF10. Tagging people in videos.                                                                            | <b>.442</b> | .184        |
| PAUMF4. See what someone has been doing.                                                                      | .310        | <b>.718</b> |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | -.229       | <b>.682</b> |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .344        | <b>.669</b> |
| PAUMF13. Looking through my friends' profiles.                                                                | .295        | <b>.549</b> |
| % explained variance                                                                                          | 32.63       | 15.83       |

*Note.* Factor loadings below .10 omitted; highest factor loading for each item in bold.

Following the removal of these items, a new exploratory factor analysis revealed that the two factors explained 54.07% of the total variance, with all items having factor loadings higher than .50 (Table 7).

**Table 7**

*Exploratory Factorial Analysis Results of the PAUMF 11 items, with two-factor solution (N = 198)*

| Item                                                                                                          | Factor 1    | Factor 2    |
|---------------------------------------------------------------------------------------------------------------|-------------|-------------|
| PAUMF1. Posting status updates.                                                                               | <b>.842</b> | .103        |
| PAUMF6. Posting photos or stories.                                                                            | .814        |             |
| PAUMF9. Posting videos.                                                                                       | .747        |             |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | <b>.728</b> | .317        |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | <b>.674</b> | .310        |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | <b>.571</b> | .119        |
| PAUMF7. Tagging people in photos.                                                                             | <b>.565</b> | .233        |
| PAUMF4. See what someone has been doing.                                                                      | .310        | .721        |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | -.234       | <b>.681</b> |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .369        | <b>.661</b> |
| PAUMF13. Looking through my friends' profiles.                                                                | .306        | <b>.550</b> |
| % explained variance                                                                                          | 35.82       | 18.26       |

*Note.* Factor loadings below .10 omitted; highest factor loading for each item in bold.

Subsequently, a confirmatory factor analysis was performed, resulting in some model fit indicators falling below acceptable levels:  $\chi^2 (43) = 115.55$ ,  $p < .001$ ,  $\chi^2/df = 2.69$ , CFI = .905, GFI = .904, TLI = .878, and RMSEA = .093 (Table 8). It was observed that item 11 had a detrimental effect on the model's quality, as it exhibited a lower standardized coefficient ( $\lambda = .216$ ). Consequently, the decision was made to exclude this item, and a new confirmatory analysis was conducted.

**Table 8**

*Confirmatory Factorial Analysis Results of the PAUMF 11 items, with two-factor model (N = 198)*

| Constructs/ Indicators                                                                                        | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                                                                                 |                        |          |
| PAUMF1. Posting status updates.                                                                               | .817                   |          |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | .763                   | 11.52*** |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | .500                   | 6.99***  |
| PAUMF6. Posting photos or stories.                                                                            | .767                   | 11.58*** |
| PAUMF7. Tagging people in photos.                                                                             | .537                   | 7.57***  |
| PAUMF9. Posting videos.                                                                                       | .706                   | 10.45*** |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | .681                   | 10.00*** |
| <i>Passive</i>                                                                                                |                        |          |
| PAUMF4. See what someone has been doing.                                                                      | .783                   |          |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .622                   | 7.01***  |
| PAUMF11. Browsing the newsfeed passively (without reacting, e.g., liking, commenting, or sharing).            | .216                   | 2.65**   |
| PAUMF13. Looking through my friends' profiles.                                                                | .600                   | 6.84***  |

\*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

The results demonstrated an enhancement in the model's fit quality:  $\chi^2(34) = 90.14$ ,  $p < .001$ ,  $\chi^2/df = 2.65$ , CFI = .924, GFI = .916, TLI = .900, and RMSEA = .092 (Table 9). However, as the RMSEA value still exceeded the recommended threshold, modification indices were examined, indicating the need to introduce error term covariances between items 2 and 3 and between items 8 and 13.

**Table 9**

*Confirmatory Factorial Analysis Results of the PAUMF 10 items, with two-factor model (N = 198)*

| Constructs/ Indicators                                                                                        | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                                                                                 |                        |          |
| PAUMF1. Posting status updates.                                                                               | .816                   |          |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | .764                   | 11.52*** |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | .501                   | 6.99***  |
| PAUMF6. Posting photos or stories.                                                                            | .768                   | 11.60*** |
| PAUMF7. Tagging people in photos.                                                                             | .537                   | 7.57***  |
| PAUMF9. Posting videos.                                                                                       | .705                   | 10.43*** |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | .681                   | 10.00*** |
| <i>Passive</i>                                                                                                |                        |          |
| PAUMF4. See what someone has been doing.                                                                      | .777                   |          |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .605                   | 6.80***  |
| PAUMF13. Looking through my friends' profiles.                                                                | .614                   | 6.87***  |

\*\*\*  $p < 0.001$

Given that these items belonged to the same factor, these covariances were incorporated, resulting in a well-fitting model:  $\chi^2(32) = 67.29, p < .001, \chi^2/df = 2.10, CFI = .952, GFI = .931, TLI = .933$ , and  $RMSEA = .075$ . All standardized coefficients were found to be statistically significant ( $p < .001$ ) and ranged from .534 to .799 (Table 10).

**Table 10**

*Confirmatory Factorial Analysis Results of the PAUMF 10 items, with two-factor model (N = 198)*

| Constructs/ Indicators                                                                                        | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                                                                                 |                        |          |
| PAUMF1. Posting status updates.                                                                               | .799                   |          |
| PAUMF2. Commenting (statuses, posts, photos, etc.).                                                           | .788                   | 11.69*** |
| PAUMF3. Chatting on Facebook Messenger.                                                                       | .534                   | 7.34***  |
| PAUMF6. Posting photos or stories.                                                                            | .762                   | 11.36*** |
| PAUMF7. Tagging people in photos.                                                                             | .541                   | 7.60***  |
| PAUMF9. Posting videos.                                                                                       | .687                   | 10.02*** |
| PAUMF12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | .693                   | 10.13*** |
| <i>Passive</i>                                                                                                |                        |          |
| PAUMF4. See what someone has been doing.                                                                      | .700                   |          |
| PAUMF8. Viewing photos and videos in the newsfeed or stories.                                                 | .718                   | 6.54***  |
| PAUMF13. Looking through my friends' profiles.                                                                | .706                   | 6.46***  |

\*\*\*  $p < 0.001$

### Validity and reliability analysis

Table 11 presents descriptive statistics and indicators of convergent and discriminant validity for the two constructs. Both constructs exhibit CR values exceeding .70, which implies the reliability of these measures, following the guidelines of Hair et al. (2019). The *Passive* construct possesses a Cronbach's alpha value slightly below .70 but remains close to this threshold.

In terms of convergent validity, all standardized coefficients were higher than the recommended threshold of .50, as shown in Table 11, and all were statistically significant ( $p < .001$ ). The *Passive* construct boasts an AVE value of .50, aligning with the recommendation of Hair et al. (2019), confirming convergent validity. Although the *Active* construct has an AVE value below .50, it is considered to have adequate convergent validity due to its CR exceeding .60, as proposed by Fornell and Larcker (1981).

With regard to discriminant validity, both constructs exhibit square root values of AVE that surpass the correlation between them, providing evidence of divergent validity in accordance with the principles outlined by Hair et al. (2019).

**Table 11**

*Descriptive measures, convergent validity, and discriminant validity (N = 198)*

| Construct         | M (SD)       | $\alpha$ | CR  | AVE | 1          | 2          |
|-------------------|--------------|----------|-----|-----|------------|------------|
| 1. <i>Active</i>  | 17.20 (4.95) | .85      | .86 | .48 | <b>.69</b> |            |
| 2. <i>Passive</i> | 7.94 (2.14)  | .68      | .75 | .50 | .65***     | <b>.71</b> |

Note: M = Mean; SD = Standard deviation; CR = Composite reliability; AVE = Average variance extracted;  $\alpha$  = Cronbach's alpha. In the diagonal matrix, the elements in bold represent the square root of the AVE, while the correlation between the constructs is presented off-diagonally. \*\*\*  $p < 0.001$ .

## Discussion

The validation analysis of this scale revealed two dimensions: “*Active*” and “*Passive*”, with a total of 10 items—seven in the first dimension and three in the second. In the context of the present study, this structure demonstrated moderate reliability and validity indicators.

Due to a strong correlation between the *Active Social* and *Active Non-social* factors, we opted to consolidate them into a single factor, resulting in a model with two factors instead of the original three. This decision aligns with the findings of Gerson et al. (2017), who observed a moderated correlation ( $r = .66$ ) between the first two factors, which they attributed to the similarity of concepts related to active involvement. However, despite this moderate correlation, we maintained the separation of these two factors because it implies that, while measuring related constructs, they remain distinct. This contrasts with an almost perfect correlation observed in our sample, where such a clear distinction could not be drawn. Our perspective is that this differentiation between what constitutes *Active Social* use remains evident during the formulation of the items. Some individuals may interpret certain items as indicative of seeking *Active Social* use. For instance, consider item 7, originally categorized under “*Active Non-social*”, which requires the creation of a visible comment for all users following the post, specifically directed at someone with whom the user intends to communicate. This item embodies the characteristics of *Active* (creating content) within *social* (communicating with friends).

As detailed throughout the “Results” section, our examination of the Portuguese sample yielded evidence supporting the removal of three specific items: items 5, 10, and 11. Notably, these items did not exhibit any problematic characteristics in the original measure proposed by Gerson et al. (2017). However, we can offer potential explanations for their performance within the

context of our present study. Firstly, item 5 deserves attention. It is important to acknowledge that creating events and responding to invitations is not a primary feature of Facebook; instead, it serves as a supplementary functionality that users do not frequently engage with. Typically, invitations come from individuals on one's friends list who share events aligned with the recipient's interests. Consequently, it is reasonable to assume that item 5 displayed limited variability in responses when compared to the other items in the PAUM-Facebook scale, leading to a low communality value. Secondly, item 10 presented challenges during the exploratory factor analysis by restricting two factors. This observation might be related to the recent introduction of video format content (or reels) on Facebook, which encourages users to engage in an "infinite-scroll" interface. This interface design makes it less enticing for individuals to pause and add a comment while tagging a friend, potentially contributing to the observed difficulties with this item. Lastly, during the confirmatory factor analysis, item 11 emerged as a source of model quality deterioration. It is possible that the formulation of this item was not the most suitable, although it raises questions about item 12, which shares a similar formulation but does not exhibit the same issue. The use of sentences constructed in the negative form ("without reacting, such as not liking, commenting, or sharing") may have caused some confusion among readers, although this issue did not arise during the pilot study.

These explanations offer insights into why these specific items presented challenges in our study, shedding light on potential contextual factors influencing their performance.

## **Study 2: Validity and reliability assessment of PAUM – Instagram**

The aim of the second study is to assess the validity and reliability of the Passive and Active Use Measure – PAUM – Instagram, which encompasses two interaction factors characteristic of this social media: *Active* and *Passive*.

### **Method**

#### **Type of study**

This study adopts a cross-sectional design that is quantitative, comparative, descriptive, and correlative in nature.

#### **Participants and sampling techniques**

Initially, data were collected from 413 participants who were intentionally recruited online through non-probabilistic random sampling. To ensure data quality, specific inclusion criteria were established: participants had to be late adolescents (aged 17) or older, proficient in Portuguese reading and writing, Instagram users, willing to participate voluntarily in the research, and capable of providing informed consent.

Participants who did not meet these inclusion criteria were automatically excluded from the study. As a result, two participants were excluded, one for being under the age of 17 and another for incorrectly completing the form. Subsequently, an additional three participants were removed from the dataset as they were identified as outliers. This led to a final sample size of 408 participants, ranging in age from 17 to 63 years ( $M = 25.17$ ,  $SD = 9.46$ ), with 73.0% ( $n = 298$ ) identifying as female.

## Instruments

The PAUM – Instagram was adapted from the original Passive and Active Instagram Use Measure developed by Trifiro (2018). The translation and back-translation of this scale were implemented using a Likert-type scale ranging from 1 to 5. In this scale, 1 corresponds to “Never (0%),” the behavior never occurs; 2 to “Rarely (25%),” the behavior occurs 25% of the time; 3 to “Sometimes (50%),” the behavior occurs 50% of the time; 4 to “Somewhat frequently (75%),” the behavior occurs 75% of the time; and 5 to “Very frequently (100%),” the behavior occurs all the time.

Table 12 presents the version used in this study, which resulted from the translation and back-translation of the PAUM-Instagram into Portuguese. As recommended by Trifiro and Gerson (2019), items 1, 2, 5, 6, and 72 were revised in accordance with their instructions and suggestions. The recommendations included identifying similar behaviors across different platforms to avoid limiting the measure to the unique features of any single platform. This approach helped define universal behaviors that go beyond specific platform features like likes, reactions, or stories. Additionally, they emphasized the need for adaptability to platform changes to ensure the measure remains relevant over time by encompassing new features and updates.

**Table 12**

### *Passive and Active Use Measure –Instagram*

- 
1. Posting photos, videos, or stories.
  2. Commenting on other users' photos or videos.
  3. Sending direct messages to other users.
  4. See what someone has been doing.
  5. Viewing photos or videos.
  6. Viewing stories.
  7. Tagging other users in photos or videos.
  8. Browsing the newsfeed passively (without liking or commenting on anything).
  9. Browsing the newsfeed actively (liking and commenting on other users' posts).
  10. Looking through my friends' posts.
- 

---

2 Trifiro (2018) presents the following items related to the original PAUM-Instagram: 1- *Posting photos to your profile*; 2. *Commenting on other users' photos*; 5-*Viewing photos*; 6. *Viewing videos*; 7 – *Tagging other users in videos*.

The scoring of the PAUM – Instagram is calculated by summing the responses to the following items: for the “Active” factor: 1, 2, 3, 7, 9; for the “Passive” factor: 4, 5, 6, 8, 10.

Guidance for completing the PAUM-Instagram questionnaire was as follows: *“How frequently do you perform the following activities when you are on Instagram? (Note: Choosing “Very Frequently” means that about 100% of the time you log on to Instagram, you perform that activity).*

## Procedures

The author of the original scale, Briana Trifiro, was contacted to request permission to use the PAUM-Instagram. Upon receiving her authorization, standard back-translation protocols were implemented to develop the Portuguese version of PAUM-Instagram (Bolaños-Medina & González-Ruiz, 2012). The ten items from the original questionnaire underwent an initial translation from English to Portuguese by an official translator and were subsequently back-translated from Portuguese to English by an experienced bilingual psychologist for comparative purposes. After comparing the translated and back-translated versions of the PAUM – Instagram, a final Portuguese version was established. To ensure the reinforcement and validity of the newly translated questionnaire, it was initially distributed to 10 Instagram users to further refine the items under study. All the items were presented to the participants in a random order.

As in Study 1, this study also received approval from the Ethics Committee of the University of Trás-os-Montes and Alto Douro (Doc61 – CEUTAD-2022). The data collection process spanned a period of 5 months, occurring between October 2022 and March 2023. To gather the sample, a dedicated Google Forms survey was created, employing the same dissemination protocol as Study 1, which included sharing the survey link on various social media such as Instagram, Facebook, Twitter, WhatsApp, and Discord. Participants who accessed the survey link were provided with an informed consent form, ensuring adherence to ethical and deontological principles, including anonymity and the protection of personal data privacy. Additionally, the contact email of the responsible researcher was made available for any clarifications, inquiries, or further information related to the study.

The completion of the survey required approximately 5 minutes from each participant, and no rewards or incentives were offered to study participants.

## Data analysis

The data analysis was conducted using IBM SPSS, version 23, and AMOS, version 26. The data analysis procedure mirrored that of Study 1, with a detailed presentation and description provided previously. It was noted that none of the items exhibited absolute asymmetry or kurtosis values greater than 3 and 8, respectively (Kline, 2011), indicating an approximately normal distribution. The outlier analysis identified three participants as outliers, and they were subsequently excluded from the

sample. The results from the Harman one-factor test (Fuller et al., 2016) suggest the absence of common method bias, as the total variance explained by a single factor (30.71%) was below the recommended threshold of 50% advocated by Podsakoff et al. (2003).

## Results

### Descriptive analysis

The descriptive statistics regarding the 10 PAUMI items are presented in Table 13. Items 3, 5, 6, 8, and 10 present mean scores higher than the theoretically medium point of the scale (3), with item 6 having the highest mean. All skewness values were below |3.0| and kurtosis below |8.0|, indicating a normal distribution.

**Table 13**

*Descriptive statistics regarding PAUMI items (N = 408)*

| Item                                                                                  | <i>M (SD)</i> | Min-Max | Skewness | Kurtosis |
|---------------------------------------------------------------------------------------|---------------|---------|----------|----------|
| PAUMI1. Posting photos, videos, or stories.                                           | 2.75 (.91)    | 1-5     | .50      | -.18     |
| PAUMI2. Commenting on other users' photos or videos.                                  | 2.31 (.80)    | 1-4     | .32      | -.26     |
| PAUMI3. Sending direct messages to other users.                                       | 3.52 (1.12)   | 1-5     | -.32     | -.84     |
| PAUMI4. See what someone has been doing.                                              | 2.94 (1.03)   | 1-5     | .07      | -.50     |
| PAUMI5. Viewing photos or videos.                                                     | 3.93 (.91)    | 1-5     | -.51     | -.36     |
| PAUMI6. Viewing stories.                                                              | 4.08 (.96)    | 1-5     | -.80     | -.24     |
| PAUMI7. Tagging other users in photos or videos.                                      | 2.29 (.95)    | 1-5     | .56      | -.05     |
| PAUMI8. Browsing the newsfeed passively (without liking or commenting on anything).   | 3.42 (1.08)   | 1-5     | -.24     | -.65     |
| PAUMI9. Browsing the newsfeed actively (liking and commenting on other users' posts). | 2.79 (1.01)   | 1-5     | .28      | -.42     |
| PAUMI10. Looking through my friends' posts.                                           | 3.78 (.90)    | 1-5     | -.44     | -.23     |

### Factorial structure

Initially, an exploratory factor analysis was conducted, resulting in the extraction of two factors that collectively explained 51.48% of the total variance (Table 14). However, it was noted that item 3 exhibited a communality value lower than the other items (.381) and had nearly equal factorial weights in both factors (.400 in factor 1 and .471 in factor 2). Consequently, the decision was made to exclude this item and reanalyze the data.

**Table 14**

*Exploratory Factorial Analysis Results of the PAUMI 10 items, with two-factor solution (N = 408)*

| Item                                                                                  | Factor 1    | Factor 2    |
|---------------------------------------------------------------------------------------|-------------|-------------|
| PAUMI2. Commenting on other users' photos or videos.                                  | <b>.760</b> | .162        |
| PAUMI7. Tagging other users in photos or videos.                                      | <b>.720</b> | .147        |
| PAUMI1. Posting photos, videos, or stories.                                           | <b>.668</b> | .141        |
| PAUMI9. Browsing the newsfeed actively (liking and commenting on other users' posts). | <b>.600</b> | .250        |
| PAUMI5. Viewing photos or videos.                                                     | .191        | <b>.775</b> |
| PAUMI6. Viewing stories.                                                              | .205        | <b>.741</b> |
| PAUMI10. Viewing my friends' posts.                                                   | .334        | <b>.657</b> |
| PAUMI8. Browsing the newsfeed passively (without liking or commenting on anything).   | -.414       | .589        |
| PAUMI4. See what someone has been doing.                                              | .396        | <b>.535</b> |
| PAUMI3. Sending direct messages to other users.                                       | .400        | <b>.471</b> |
| % explained variance                                                                  | 25.81       | 25.67       |

*Note.* Highest factor loading for each item in bold.

Upon excluding item 3 and reperforming the analysis, there was an increase in the percentage of total explained variance by the two factors, reaching 53.77% (Table 15). All items now had factorial weights above .50. The first factor comprised items 1, 2, 7, and 9, aligning with the *Active* construct. The second factor encompassed items 4, 5, 6, 8, and 10, corresponding to the *Passive* construct.

**Table 15**

*Exploratory Factorial Analysis Results of the PAUMI 9 items, with two factor solution (N = 408)*

| Item                                                                                  | Factor 1    | Factor 2    |
|---------------------------------------------------------------------------------------|-------------|-------------|
| PAUMI2. Commenting on other users' photos or videos.                                  | <b>.770</b> | .144        |
| PAUMI7. Tagging other users in photos or videos.                                      | <b>.726</b> | .125        |
| PAUMI1. Posting photos, videos, or stories.                                           | <b>.676</b> | .124        |
| PAUMI9. Browsing the newsfeed actively (liking and commenting on other users' posts). | <b>.612</b> | .236        |
| PAUMI5. Viewing photos or videos.                                                     | .217        | <b>.766</b> |
| PAUMI6. Viewing stories.                                                              | .225        | <b>.724</b> |
| PAUMI10. Viewing my friends' posts.                                                   | .363        | <b>.656</b> |
| PAUMI8. Browsing the newsfeed passively (without liking or commenting on anything).   | -.386       | <b>.616</b> |
| PAUMI4. See what someone has been doing.                                              | .427        | <b>.545</b> |
| % explained variance                                                                  | 27.92       | 25.85       |

*Note.* Highest factor loading for each item in bold.

A confirmatory factor analysis was conducted, which revealed some model adjustment indicators falling below the acceptable thresholds:  $\chi^2$  (26) = 99.34,  $p < .001$ ,  $\chi^2/df = 3.82$ , CFI = .917, GFI = .948, TLI = .885, and RMSEA = .083 (Table 16). During this analysis, it was observed that item 8 had a low standardized coefficient ( $\lambda = .210$ ), adversely affecting the model's quality. Consequently, item 8 was removed, and a new confirmatory analysis was performed.

**Table 16**

*Confirmatory Factorial Analysis Results of the PAUMI 9 items, with two-factor model (N = 408)*

| Constructs/ Indicators                                                                | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                                                         |                        |          |
| PAUMI1. Posting photos, videos, or stories.                                           | .613                   |          |
| PAUMI2. Commenting on other users' photos or videos.                                  | .709                   | 9.78***  |
| PAUMI7. Tagging other users in photos or videos.                                      | .647                   | 9.36***  |
| PAUMI9. Browsing the newsfeed actively (liking and commenting on other users' posts). | .553                   | 8.44***  |
| <i>Passive</i>                                                                        |                        |          |
| PAUMI4. See what someone has been doing.                                              | .614                   |          |
| PAUMI5. Viewing photos or videos.                                                     | .697                   | 10.27*** |
| PAUMI6. Viewing stories.                                                              | .677                   | 10.09*** |
| PAUMI8. Browsing the newsfeed passively (without liking or commenting on anything).   | .210                   | 3.70***  |
| PAUMI10. Looking through my friends' posts.                                           | .711                   | 10.38*** |

\*\*\*  $p < 0.001$

The results of the revised model indicated an improvement in model fit:  $\chi^2$  (19) = 62.71,  $p < .001$ ,  $\chi^2/df = 3.30$ , CFI = .948, GFI = .962, TLI = .923, RMSEA = .075 (Table 17). However, the  $\chi^2/df$  value remained above the recommended threshold, and modification indices suggested the introduction of covariance between the error terms of item 9 and the *Passive* factor. Furthermore, item 9 displayed a lower standardized coefficient compared to the other items ( $\lambda = .556$ ) in this model. To address these issues, item 9 was excluded, and the analysis was reconfigured.

**Table 17**

*Confirmatory Factorial Analysis Results of the PAUMI 8 items, with two-factor model (N = 408)*

| Constructs/ Indicators                                                                | Standardized Estimates | <i>t</i> |
|---------------------------------------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                                                         |                        |          |
| PAUMI1. Posting photos, videos, or stories.                                           | .611                   |          |
| PAUMI2. Commenting on other users' photos or videos.                                  | .710                   | 9.80***  |
| PAUMI7. Tagging other users in photos or videos.                                      | .645                   | 9.35***  |
| PAUMI9. Browsing the newsfeed actively (liking and commenting on other users' posts). | .556                   | 8.47***  |
| <i>Passive</i>                                                                        |                        |          |
| PAUMI4. See what someone has been doing.                                              | .619                   |          |
| PAUMI5. Viewing photos or videos.                                                     | .684                   | 10.18*** |
| PAUMI6. Viewing stories.                                                              | .669                   | 10.04*** |
| PAUMI10. Viewing my friends' posts.                                                   | .716                   | 10.45*** |

\*\*\*  $p < 0.001$

The final model demonstrated good adjustment quality:  $\chi^2 (13) = 35.20$ ,  $p = .001$ ,  $\chi^2/df = 2.71$ , CFI = .969, GFI = .975, TLI = .950, RMSEA = .065. All standardized coefficients proved to be statistically significant ( $p < .001$ ) and ranged between .610 and .712 (Table 18).

**Table 18**

*Results of the final PAUMI confirmatory factorial analysis (N = 408)*

| Constructs/ Indicators                               | Standardized Estimates | <i>t</i> |
|------------------------------------------------------|------------------------|----------|
| <i>Active</i>                                        |                        |          |
| PAUMI1. Posting photos, videos, or stories.          | .659                   |          |
| PAUMI2. Commenting on other users' photos or videos. | .678                   | 9.48***  |
| PAUMI7. Tagging other users in photos or videos.     | .672                   | 9.46***  |
| <i>Passive</i>                                       |                        |          |
| PAUMI4. See what someone has been doing.             | .610                   |          |
| PAUMI5. Viewing photos or videos.                    | .687                   | 10.03*** |
| PAUMI6. Viewing stories.                             | .679                   | 9.96***  |
| PAUMI10. Looking through my friends' posts.          | .712                   | 10.22*** |

\*\*\*  $p < 0.001$

### Validity and reliability

Table 19 displays the descriptive statistics, convergent validity, and discriminant validity for the two constructs in the study. It is worth noting that both constructs exhibit composite reliability (CR) and Cronbach's alpha values exceeding .70, indicating the reliability of the measures in line with the guidelines of Hair et al. in 2019.

Regarding convergent validity, all the standardized coefficients are statistically significant ( $p < .001$ ), and all surpass the recommended threshold of .50 (as shown in Table 6). Although both constructs have average variance extracted (AVE) values slightly below .50, their convergent validity remains acceptable since CR values are both above .60 (Fornell & Larcker, 1981). Moreover, both constructs have AVE square root values exceeding the correlation between them, confirming divergent validity (Hair et al., 2019).

**Table 19**

*Descriptive measures, convergent validity, and discriminant validity (N = 408)*

| Construct         | M (SD)       | $\alpha$ | CR  | AVE | 1          | 2          |
|-------------------|--------------|----------|-----|-----|------------|------------|
| 1. <i>Active</i>  | 7.35 (2.11)  | .71      | .71 | .45 | <b>.67</b> |            |
| 2. <i>Passive</i> | 14.73 (2.90) | .76      | .77 | .45 | .60***     | <b>.67</b> |

*Note:* M = Mean; SD = Standard deviation; CR = Composite reliability; AVE = Average variance extracted;  $\alpha$  = Cronbach's alpha. In the diagonal matrix, the elements in bold represent the square root of the AVE, while the correlation between the constructs is presented off-diagonally. \*\*\*  $p < 0.001$ .

### Discussion

The validation analysis of the PAUM-Instagram resulted in the identification of two distinct dimensions: “*Active*” and “*Passive*”, consisting of a total of seven items, with three in the first dimension and four in the second. Notably, this structural arrangement demonstrated strong reliability and validity indicators within the context of the present study. This decision aligns with the findings of Trifiro (2018), who observed Cronbach's alpha values exceeding .70. As outlined in the “Results” section, evidence emerged from the Portuguese sample supporting the exclusion of three specific items: items 3, 8, and 9. It is important to note that we do not possess information indicating that these items exhibited problematic features in the original measure developed by Trifiro (2018). However, the author did acknowledge certain limitations in incorporating the PAUM-Instagram into her study, particularly concerning the non-mutually exclusive nature of the two categories, “*Active*” and “*Passive*” (Trifiro & Gerson, 2019). In other words, within a single session, users can engage in both “*Active*” and “*Passive*” activities on this social media.

Considering this concept, it becomes easier to comprehend why item 3 exhibited a lower communality value compared to the other items in the PAUM-Instagram questionnaire and why it equally 'loaded' on both factors. In our interpretation, an individual with a predominantly *Passive* usage pattern may still occasionally engage in sending direct messages, perhaps to close friends or relatives.

This central idea can also be extended to item 9, initially categorized under the *Active* factor, where modification indices suggested the inclusion of covariance between the error term of item 9 and the *Passive* factor. The same principle applies to item 8, which was adversely affecting the model's quality.

### General discussion

Two questionnaires, the Passive and Active Use Measure (PAUM), have been successfully validated to assess the active and passive use of both Facebook and Instagram within the Portuguese population. In the case of PAUM – Facebook, consisting of 10 items (see Appendix A English and Portuguese versions), the items effectively support the *Active* and *Passive* factors and demonstrate suitable internal consistency. Similarly, the seven items of PAUM – Instagram (see Appendix B English and Portuguese versions) also align with the *Active* and *Passive* factors and exhibit adequate internal consistency. Overall, both PAUM scales (for Facebook and Instagram) demonstrated good discriminant and convergent validity. Our study corroborates the findings of Gerson et al. (2017) and Trifiro (2018), who similarly validated a social media use measure, thus supporting the cross-cultural applicability of our findings. Despite these encouraging results, the only previous study examining the validity of the Passive and Active Use Measure (PAUM) is the study by Gerson et al. (2017).

We would highlight the scale's validation analysis, which identified two dimensions, *Active* and *Passive*, comprising 10 items (PAUM – Facebook). Consolidating the *Active Social* and *Active Non-social* factors into a single factor was justified due to a strong correlation, although distinctions were maintained due to their conceptual differences. Explanations were provided for removing three specific items in the PAUM-Facebook, attributing their performance issues to contextual factors such as the nature of Facebook features and recent interface changes (Gerson et al., 2017). These insights shed light on potential influences on item performance. Similarly, the validation analysis of the PAUM-Instagram identified two dimensions, demonstrating strong reliability and validity indicators. Three specific items were excluded due to their non-exclusive nature, allowing users to engage in both *Active* and *Passive* activities within a single session. This understanding clarified the performance issues of these items and their implications for measurement accuracy. Overall,

these insights contribute to a better understanding of measurement issues and contextual factors influencing the assessment of *Active* and *Passive* social media use.

Rapid technological evolution poses challenges in creating and validating social media use scales tailored to specific platforms. As recommended by Trifiro and Gerson (2019), it would be pertinent to develop a unified instrument for users across various social media. Another challenge lies in how psychology and communication define social media engagement. While it might seem appealing to categorize users as active or passive, this binary approach might not capture the complexity of users' interactions. Factors like the device used, the context of usage, and even mood can influence how individuals engage with social media. For example, someone might switch between active social interaction, active non-social usage, and passive scrolling within a single session. Therefore, a rigid categorization of users may not accurately reflect real-world usage patterns (Trifiro & Gerson, 2019).

### **Limitation and conclusion**

The concepts of active and passive use in the context of Facebook and Instagram can indeed be complex and multifaceted. Users often switch between active and passive behaviors during a single online session. Therefore, it would be valuable for future studies to delve deeper into these patterns by analyzing the frequency and intensity of such use. Additionally, a more precise measure of time spent on social media, down to hours and minutes, could help distinguish the specific time allocation for active and passive users. This could provide richer insights into user behavior. There is a pressing need for a universal scale capable of measuring engagement across different platforms and updates. This approach can help understand the nature of usage, differentiating between passive and active engagement while considering the unique characteristics of each social media. For instance, distinctions can be made between social media that primarily feature textual elements and those that emphasize visual content. Furthermore, when constructing a consolidated instrument, it is essential to account for factors such as 'likes' and other user reactions, which might appear as passive behavior but should also be recognized as a form of active engagement. This distinction is crucial to avoid conceptual confusion since such actions involve the act of receiving and reading content rather than initiating direct communication.

Future research could explore potential connections between different personality traits and the propensity for more active or passive use of these social media platforms, like the work conducted by Gerson et al. (2017). Also, it is important to acknowledge another limitation, particularly regarding the inclusion of participants with disabilities. The study did not explicitly involve

individuals with disabilities, which limits the generalizability of its findings to this population. A recent meta-analysis (Yin et al., 2019) considers the importance of understanding how social media affects the mental health of individuals with disabilities, who may have unique experiences and needs in digital environments. Professionals in special education and rehabilitation could benefit greatly from research that specifically addresses the relationship between social media use and the well-being of individuals with disabilities. By understanding the nuances of this relationship, professionals can develop tailored interventions and support strategies to address the specific challenges and opportunities faced by individuals with disabilities in the digital age. The lack of inclusion of participants with disabilities in this study means that the findings may not fully capture the diverse experiences within this population. As a result, the implications drawn from the study may not be directly applicable to individuals with disabilities, and the effectiveness of interventions based on these findings may be limited. Future research should strive to include participants with disabilities to ensure a more comprehensive understanding of the impact of social media on their well-being and mental health. By actively involving individuals with disabilities in research studies, professionals can develop more inclusive interventions and contribute to creating accessible digital environments that promote the well-being of all individuals, regardless of ability.

It is also essential to recognize the cultural and contextual factors that may influence social media usage patterns. While this study focused on the Portuguese population, future research could explore cross-cultural variations in active and passive usage behaviors. Additionally, longitudinal studies could investigate how these patterns evolve over time, considering technological advancements and shifts in social norms.

In conclusion, recognizing and studying the dynamics of passive and active use on Facebook and Instagram is essential for a comprehensive understanding of user engagement. The Passive and Active Use Measures – Facebook and Instagram represent valid, reliable, and concise tools for assessing the type of use exhibited by users on these social media platforms. Continued research using the PAUM scales can enhance our understanding of the nuanced ways in which social media shapes human behavior and experiences.

## References

- Blunch, N. (2012). *Introduction to structural equation modeling using IBM SPSS statistics and AMOS*. Sage.
- Bolaños-Medina, A., & González-Ruiz, V. (2012). Deconstructing the translation of psychological tests. *Meta*, 57(3), 715-739. <https://doi.org/10.7202/1017088ar>
- Bollen, K. A. (1989). *Structural equations with latent variables*. John Wiley & Sons.
- Brandtzæg, P.B. (2016). The Social Media Natives. In E. Elstad (Ed.), *Digital Expectations and Experiences in Education* (pp. 149-162). Sense Publishers. [https://doi.org/10.1007/978-94-6300-648-4\\_9](https://doi.org/10.1007/978-94-6300-648-4_9)

- Carr, C.T., & Hayes, R.A. (2015). Social Media: Defining, developing, and divining. *Atlantic Journal of Communication*, 23(1), 46-65. <https://doi.org/10.1080/15456870.2015.972282>
- Choi, J. (2022). Do Facebook and Instagram differ in their influence on life satisfaction? A study of college men and women in South Korea. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 16(1), Article 2. <https://doi.org/10.5817/CP2022-1-2>
- Coyne, S.M., Rogers, A.A., Zurcher, J.D., Stockdale, L.A., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in Human Behavior*, 104, 1-9. <https://doi.org/10.1016/j.chb.2019.106160>
- de Vries, D. A., Möller, A. M., Wieringa, M. S., Eigenraam, A. W., & Hamelink, K. (2018). Social comparison as the thief of joy: Emotional consequences of viewing strangers' Instagram posts. *Media Psychology*, 21(2), 222-245. <https://doi.org/10.1080/15213269.2016.1267647>
- Escobar-Viera, C. G., Shensa, A., Bowman, N. D., Sidani, J. E., Knight, J., James, A. E., & Primack, B. A. (2018). Passive and active social media use and depressive symptoms among United States adults. *Cyberpsychology, behavior and social networking*, 21(7), 437-443. <https://doi.org/10.1089/cyber.2017.0668>
- Eurostat. (2020). Are you using social networks? (EDN-20200630-2). Eurostat News. <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/edn-20200630-2>
- Field, A. P. (2017). *Discovering statistics using IBM SPSS Statistics (5th ed.)*. Sage.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.1177/002224378101800104>
- Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, 69(8), 3192-3198. <https://doi.org/10.1016/j.jbusres.2015.12.008>
- Gerson, J., Plagnol, A. C., & Corr, P. J. (2017). Passive and Active Facebook Use Measure (PAUM): Validation and relationship to the Reinforcement Sensitivity Theory. *Personality and Individual Differences*, 117, 81-90. <https://doi.org/10.1016/j.paid.2017.05.034>
- Grupo Marktest. (2021). *Os Portugueses e as Redes Sociais 2021: Análise sobre o comportamento dos portugueses nas redes sociais*. Grupo Marktest.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis (8th ed.)*. Cengage Learning.
- Instituto Nacional de Estatística. (2019). Inquérito à utilização de tecnologias da informação e da comunicação pelas famílias 2019 [Press release]. [https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine\\_destaques&DESTAQUESdest\\_boui=354447559&DESTAQUESmodo=2&xlang=pt](https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354447559&DESTAQUESmodo=2&xlang=pt)
- Karim, F., Oyewande, A. A., Abdalla, L. F., Chaudhry Ehsanullah, R., & Khan, S. (2020). Social media use and its connection to mental health: A systematic review. *Cureus*, 12(6), e8627. <https://doi.org/10.7759/cureus.8627>
- Kingsbury, M., Reme, B.-A., Skogen, J. C., Sivertsen, B., Øverland, S., Cantor, N., Hysing, M., Petrie, K., & Colman, I. (2021). Differential associations between types of social media use and university students' non-suicidal self-injury and suicidal behavior. *Computers in Human Behavior*, 115, 1-6. <https://doi.org/10.1016/j.chb.2020.106614>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling (3rd ed.)*. Guilford Press.

- Krasnova, H., Wenninger, H., Widjaja, T., & Buxmann, P. (2013). Envy on Facebook: A hidden threat to users' life satisfaction? *Wirtschaftsinformatik Proceedings 2013*, 92, 1-16. <https://aisel.aisnet.org/wi2013/92/>
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shaback, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS ONE*, 8(8), e69841, 1-6. <https://doi.org/10.1371/journal.pone.0069841>
- Liu, D., Baumeister, R. F., Yang, C.-C., & Hu, B. (2019). Digital communication media use and psychological well-being: A meta-analysis. *Journal of Computer-Mediated Communication*, 24(5), 259-273. <https://doi.org/10.1093/jcmc/zmz013>
- Masciantonio, A., Bourguignon, D., Bouchat, P., Balty, M., & Rimé, B. (2021). Don't put all social network sites in one basket: Facebook, Instagram, Twitter, TikTok, and their relations with well-being during the COVID-19 pandemic. *PLoS ONE*, 16(3), e0248384, 1-14. <https://doi.org/10.1371/journal.pone.0248384>
- Naslund, J. A., Bondre, A., Torous, J., & Aschbrenner, K. A. (2020). Social media and mental health: Benefits, risks, and opportunities for research and practice. *Journal of Technology in Behavioral Science*, 5(3), 245-257. <https://doi.org/10.1007/s41347-020-00134-x>
- Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, 62, 155-167. <http://dx.doi.org/10.1016/j.chb.2016.03.084>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Statista Search Department (2022a, August 3rd). *Facebook: number of monthly active users worldwide 2008-2022*. Statista. <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>
- Statista Search Department (2022b, August 3rd). *Instagram: number of global users 2020-2025*. Statista. <https://www.statista.com/statistics/183585/instagram-number-of-global-users/>
- Thorisdottir, I. E., Sigurvinsdottir, R., Asgeirsdottir, B. B., Allegrante, J. P., & Sigfusdottir, I. D. (2019). Active and passive social media use and symptoms of anxiety and depressed mood among Icelandic adolescents. *Cyberpsychology, Behavior and Social Networking*, 22(8), 535-542. <https://doi.org/10.1089/cyber.2019.0079>
- Trifiro, B. (2018). Instagram Use and Its Effect on Well-Being and Self-Esteem [Unpublished master dissertation]. Bryant University
- Trifiro, B. M., & Gerson, J. (2019). Social media usage patterns: Research Note regarding the lack of universal validated Measures for Active and Passive Use. *Social Media + Society*, 5(2), 1-4. <https://doi.org/10.1177/2056305119848743>
- Trifiro, B. M., & Prena, K. (2021). Active Instagram use and its association with self-esteem and well-being. *Technology, Mind, and Behavior*, 2(3), 1-5. <https://doi.org/10.1037/tmb0000043>
- Ulvi, O., Karamelic-Muratovic, A., Baghbanzadeh, M., Bashir, A., Smith, J., Haque, U. (2022). Social media use and mental health: A global analysis. *Epidemiologia*, 3, 11-25. <https://doi.org/10.3390/epidemiologia3010002>
- Valkenburg P. M. (2022). Social media use and well-being: What we know and what we need to know. *Current Opinion in Psychology*, 45, 101294. <https://doi.org/10.1016/j.copsyc.2021.12.006>

- Valkenburg, P. M., & Piotrowski, J. T. (2017). Social Media. In P. M. Valkenburg, & J. T. Piotrowski (Eds.), *Plugged in: How media attract and affect youth* (pp. 218-243). Yale University Press. <https://doi.org/10.12987/9780300228090-014>
- Valkenburg, P. M., van Driel, I. I., & Beyens, I. (2022). The associations of active and passive social media use with well-being: A critical scoping review. *New Media & Society*, 24(2), 530-549. <https://doi.org/10.1177/14614448211065425>
- Verduyn, P., Gugushvili, N., & Kross, E. (2021). The impact of social network sites on mental health: distinguishing active from passive use. *World Psychiatry: Official Journal of the World Psychiatric Association (WPA)*, 20(1), 133-134. <https://doi.org/10.1002/wps.20820>
- Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., Ybarra, O., Jonides, J., & Kross, E. (2015). Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology: General*, 144(2), 480-488. <https://doi.org/10.1037/xge0000057>
- Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review*, 11(1), 274-302. <https://doi.org/10.1111/sipr.12033>
- Yin, X.-Q., de Vries, D. A., Gentile, D. A., & Wang, J.-L. (2019). Cultural Background and Measurement of Usage Moderate the Association Between Social Networking Sites (SNSs) Usage and Mental Health: A Meta-Analysis. *Social Science Computer Review*, 37(5), 631-648. <https://doi.org/10.1177/0894439318784908>

## Psihometrijska validacija mere pasivne i aktivne upotrebe (PAUM) za Facebook i Instagram među portugalskim uzorkom

Liliana Mendes<sup>a</sup>, Levi Leonido<sup>b,c</sup>, Natércia Pereira<sup>d</sup>, Elsa Gabriel Morgado<sup>e,f</sup>

<sup>a</sup> Univerzitet u Koimbri, Institut Koimbra za biomedicinsko snimanje i translaciona istraživanja – CIBIT, Koimbra, Portugal

<sup>b</sup> Univerzitet Tras-os-Montes i Alto Douro, Vila Real, Portugal

<sup>c</sup> Katolički univerzitet Portugala, Centar za istraživanje nauke i tehnologije umetnosti, Porto, Portugal

<sup>d</sup> Univerzitet u Koimbri, student master studija na Fakultetu psihologije i obrazovnih nauka, Koimbra, Portugal

<sup>e</sup> Centar za studije u obrazovanju i inovacijama (CI& DEI) Politehnički institut u Vizeu, Vizeu, Portugal

<sup>f</sup> Politehnički institut Braganse, Bragansa, Portugal

*Uvod:* Pojava društvenih medija temeljno je transformisala način na koji ljudi komuniciraju, premošćujući jaz između pasivne digitalne potrošnje i aktivnog angažovanja. *Cilj:* Ova studija ima za cilj da validira Meru pasivne i aktivne upotrebe (PAUM) za Facebook i Instagram na uzorku portugalskih ispitanika, istražujući različite načine interakcije koji obuhvataju: aktivno društveno, aktivno nedruštveno, aktivno i pasivno. *Metode:* Sprovedene su dve deskriptivne, presečne i kvantitativne studije, uključujući ukupno 606 učesnika (N=198 za studiju 1, N=408 za studiju 2), u dobu od 17 do 67 godina. *Rezultati:* Analizirana je faktorska struktura oba instrumenta, kao i njihova konvergentna i diskriminativna validnost i pouzdanost. Obe skale – PAUM-Facebook (studija 1) i PAUM-Instagram (studija 2) – pokazale su robustne faktorske strukture, istaknute pouzdanim pokazateljima validnosti i pouzdanosti. Sastavljene od deset, odnosno sedam stavki, ove skale organizovane su u dve dimenzije: aktivno i pasivno. *Zaključak:* Ova studija potvrđuje da instrumenti PAUM poseduju snažne psihometrijske karakteristike, čineći ih vrednim alatima za procenu obrazaca korišćenja Facebooka i Instagrama u portugalskoj populaciji, sa širom primenom u budućim istraživanjima u oblasti psihologije.

*Ključne reči:* društveni mediji, obrazovanje, aktivna upotreba, pasivna upotreba, portugalski uzorak

## Appendix A

### English version Passive and Active Use Measure – Facebook

*Instructions:* How frequently do you perform the following activities when you are on Facebook? (Note: Choosing “Very Frequently” means that about 100% of the time that you log on to Facebook, you perform that activity).

|                                                                                                          | Never<br>(0%) | Rarely<br>(25%) | Sometimes<br>(50%) | Somewhat<br>frequently<br>(75%) | Very<br>frequently<br>(100%) |
|----------------------------------------------------------------------------------------------------------|---------------|-----------------|--------------------|---------------------------------|------------------------------|
| 1. Posting status updates.                                                                               | 1             | 2               | 3                  | 4                               | 5                            |
| 2. Commenting (on statuses, posts, photos, etc.).                                                        | 1             | 2               | 3                  | 4                               | 5                            |
| 3. Chatting on Facebook Messenger.                                                                       | 1             | 2               | 3                  | 4                               | 5                            |
| 4. See what someone has been doing.                                                                      | 1             | 2               | 3                  | 4                               | 5                            |
| 6. Posting photos or stories.                                                                            | 1             | 2               | 3                  | 4                               | 5                            |
| 7. Tagging people in photos.                                                                             | 1             | 2               | 3                  | 4                               | 5                            |
| 8. Viewing photos and videos in the newsfeed or stories.                                                 | 1             | 2               | 3                  | 4                               | 5                            |
| 9. Posting videos.                                                                                       | 1             | 2               | 3                  | 4                               | 5                            |
| 12. Browsing the newsfeed actively (reacting, e.g., liking, commenting on posts, photos, sharing, etc.). | 1             | 2               | 3                  | 4                               | 5                            |
| 13. Looking through my friends' profiles.                                                                | 1             | 2               | 3                  | 4                               | 5                            |

Items should be presented to respondents in randomized order.

Scoring: Items are summed.

**Dimensions:** *Active:* 1, 2, 3, 6, 7, 9, 12; *Passive:* 4, 8, 13.

Versão Portuguesa da Medida de Uso Passivo e Ativo do Facebook (MUPA)

**Instruções:** Com quanta frequência realiza as seguintes atividades quando está no Facebook? (Nota: se escolher “Muito frequentemente”, significa que realiza a atividade praticamente 100% das vezes que entra no Facebook).

|                                                                                                                                     | Nunca (0%) | Raramente (25%) | Às vezes (50%) | Com alguma frequência (75%) | Muito frequentemente (100%) |
|-------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|----------------|-----------------------------|-----------------------------|
| 1. Publicar atualizações de estado.                                                                                                 | 1          | 2               | 3              | 4                           | 5                           |
| 2. Comentar (estados, publicações, fotografias, etc.).                                                                              | 1          | 2               | 3              | 4                           | 5                           |
| 3. Falar no chat do Facebook.                                                                                                       | 1          | 2               | 3              | 4                           | 5                           |
| 4. Ver o que alguém tem feito.                                                                                                      | 1          | 2               | 3              | 4                           | 5                           |
| 6. Publicar fotografias ou histórias.                                                                                               | 1          | 2               | 3              | 4                           | 5                           |
| 7. Fazer marcações em fotografias.                                                                                                  | 1          | 2               | 3              | 4                           | 5                           |
| 8. Ver fotografias e vídeos no feed de notícias ou nas histórias.                                                                   | 1          | 2               | 3              | 4                           | 5                           |
| 9. Publicar vídeos.                                                                                                                 | 1          | 2               | 3              | 4                           | 5                           |
| 12. Percorrer o feed de notícias ativamente (a reagir, p. ex., fazer gosto, comentar em publicações, fotografias, partilhar, etc.). | 1          | 2               | 3              | 4                           | 5                           |
| 13. Analisar os perfis dos meus amigos.                                                                                             | 1          | 2               | 3              | 4                           | 5                           |

Os itens devem ser apresentados aos inquiridos de forma aleatória.

Pontuação: soma dos itens.

**Dimensões:** *Ativo:* 1, 2, 3, 6, 7, 9, 12; *Passivo:* 4, 8, 13.

## Appendix B

### English version Passive and Active Use Measure – Instagram

Instructions: How frequently do you perform the following activities when you are on Instagram? (Note: Choosing “Very Frequently” means that about 100% of the time that you log on to Instagram, you perform that activity).

|                                                 | Never<br>(0%) | Rarely<br>(25%) | Sometimes<br>(50%) | Somewhat<br>frequently<br>(75%) | Very<br>frequently<br>(100%) |
|-------------------------------------------------|---------------|-----------------|--------------------|---------------------------------|------------------------------|
| 1. Posting photos, videos, or stories.          | 1             | 2               | 3                  | 4                               | 5                            |
| 2. Commenting on other users' photos or videos. | 1             | 2               | 3                  | 4                               | 5                            |
| 4. See what someone has been doing.             | 1             | 2               | 3                  | 4                               | 5                            |
| 5. Viewing photos or videos.                    | 1             | 2               | 3                  | 4                               | 5                            |
| 6. Viewing stories.                             | 1             | 2               | 3                  | 4                               | 5                            |
| 7. Tagging other users in photos or videos.     | 1             | 2               | 3                  | 4                               | 5                            |
| 10. Looking through my friends' posts.          | 1             | 2               | 3                  | 4                               | 5                            |

Items should be presented to respondents in randomized order.

Scoring: Items are summed.

**Dimensions:** *Active:* 1, 2, 7; *Passive:* 4, 5, 6, 10

Versão Portuguesa da Medida de Uso Passivo e Ativo do Instagram (MUPA)

*Instruções:* Com quanta frequência realiza as seguintes atividades quando está no Instagram? (Nota: se escolher “Muito frequentemente”, significa que realiza a atividade praticamente 100% das vezes que entra no Instagram).

|                                                              | Nunca (0%) | Raramente (25%) | Às vezes (50%) | Com alguma frequência (75%) | Muito frequentemente (100%) |
|--------------------------------------------------------------|------------|-----------------|----------------|-----------------------------|-----------------------------|
| 1. Publicar fotografias, vídeos ou histórias.                | 1          | 2               | 3              | 4                           | 5                           |
| 2. Comentar as fotografias ou vídeos de outros utilizadores. | 1          | 2               | 3              | 4                           | 5                           |
| 4. Ver o que alguém tem feito.                               | 1          | 2               | 3              | 4                           | 5                           |
| 5. Ver fotografias ou vídeos.                                | 1          | 2               | 3              | 4                           | 5                           |
| 6. Ver histórias.                                            | 1          | 2               | 3              | 4                           | 5                           |
| 7. Marcar outros utilizadores em fotografias ou vídeos.      | 1          | 2               | 3              | 4                           | 5                           |
| 10. Ver as publicações dos meus amigos.                      | 1          | 2               | 3              | 4                           | 5                           |

Os itens devem ser apresentados aos inquiridos de forma aleatória.

Pontuação: soma dos itens.

**Dimensões:** *Ativo:* 1, 2, 7; *Passivo:* 4, 5, 6, 10

PRIMLJENO: 08.12.2023.

REVIDIRANO: 11.10.2024.

PRIHVACENO: 26.10.2024.