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Adaptation and Validation of the New Social Dominance Orientation Scale (SDO7) To European-Portuguese

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Abstract: Understanding why hierarchical social systems thrive and persist has been an important issue for the social sciences. Social dominance orientation (SDO) is considered one of the most important measures to study intergroup attitudes and behavior and how hierarchical social systems are maintained. In this study ($N = 313$) we assessed the psychometric proprieties of the European-Portuguese version of the SDO₇ scale and examined the proposed two-factor solution corresponding to the two SDO subdimensions (SDO-D and SDO-E). Results of the confirmatory factor analysis showed that both the one-factor (full scale) and the two-factor solution model have good indicators of model fit. Nevertheless, results also showed that, although the SDO full scale was positively correlated with all the related constructs (e.g., right-wing authoritarianism, meritocracy), each subdimension correlated with them differently. Thus, considering and examining the two subdimensions separately should allow to understand and predict, with more precision, intergroup attitudes, and behaviors.

Keywords: Social dominance orientation, intergroup relations, psychometric properties, scale validation

All social systems tend to be organized based on hierarchies where at least one group has higher status and more power than the others (e.g., Pratto et al., 2013). Hierarchical social structures seem inevitable and strongly resistant to changes, promoting and maintaining social inequalities and injustice (e.g., Pratto et al., 2013). Indeed, as Jim Sidanius noted (in a personal note about his life path and meaningful events that inspired the development of social dominance theory), “every attempt to replace group-based hierarchy with truly egalitarian social interaction has failed, without exception” (Sidanius, & Pratto, 2012, p. 422). As he continues, although “many of these revolutionary efforts have succeeded in replacing one group of ruling elites with another, and sometimes even decreasing the overall level of oppression, none have ever succeeded in their original goals of replacing group-based hierarchy with genuine egalitarianism” (Sidanius, & Pratto, 2012, p. 422). Thus, hierarchies and social stratification have prevailed, been perpetuated, even in social systems based on equality, contributing to systemic inequality (e.g., systemic racism), discrimination, and social exclusion. Indeed, racism, ethnocentrism, sexism, and many other forms of intergroup conflict and oppression, are grounded on, or are a manifestation of, preferences for social hierarchies and inequality. Thus, understanding individuals’ support for group-based hierarchies and social inequality, and the reason why hierarchical and unequal social systems thrive and persist, has been an important issue for the social sciences and particularly, for social psychology. To address these questions, one of the most important theories developed was the Social Dominance Theory.

Social dominance theory

Social dominance theory (SDT) argues that these social hierarchical systems tend to be stable and there is a high consensus on which groups are dominants (e.g., European Americans in the United States; natives) and which groups are subordinates (e.g., African Americans and Latinos; immigrants) (e.g., Sidanius & Pratto, 1993). SDT posits that these social systems rely on, and are maintained through, legitimizing myths; that is, beliefs that justify and legitimize the attribution of positive or negative social value to the social groups within a social system. These beliefs either promote (hierarchy-enhancing legitimizing myths) or attenuate (hierarchy-attenuating legitimizing myths) intergroup hierarchies and inequality (Sidanius et al., 1994a). The extent to which these legitimizing myths or ideologies are accepted by individuals is represented by social dominance orientation (SDO).

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Social dominance orientation

SDO reflects preference and support for the maintenance of hierarchically structured intergroup relations, dominant-subordinate relationships, and inequality between social groups (Sidanius et al., 1994a; Sidanius et al., 2017). Thus, high scores on SDO reflect support for group-based hierarchies and inequality, as well as beliefs that social groups differ and should differ in value. Low scores on SDO are associated with support for group-based equality and opposition to differentiations between groups' status, power and resources (e.g., Pratto et al., 2000).

SDT predicts that members of high-status groups tend to more strongly support group-based hierarchy and inequality (i.e., higher SDO) than members of low-status groups (e.g., Levin, 2004; Sidanius et al., 1994a), because these attitudes justify and legitimate their dominant position (Levin & Sidanius, 1999). For high-status (dominant) groups, equality represents a decrease in ingroup status and power, being inconsistent with privileged ingroup interests and with the maintenance of a positive ingroup distinctiveness. On the contrary, for low-status (subordinate) groups, equality represents an increase in status and power, which allows to achieve a positive group identity, and thus, low SDO scores are expected among members of these groups (Schmitt et al., 2003).

Moreover, SDO is expected to be more strongly related to hierarchy-enhancing legitimizing myths (e.g., racism, sexism, meritocracy) among members of high-status groups, than among members of low-status groups - known as the *ideological asymmetry hypothesis* (Sidanius et al., 1994b). Related to this hypothesis, SDT also expects that the relation between SDO and ingroup attachment (e.g., ingroup identification, ingroup favoritism) should increase as a function of social status, that is, this relationship is expected to be stronger among members of high-status groups than low-status groups (Sidanius et al., 1994b). Nevertheless, more recent evidence has challenged this assumption, showing that, when status distinctions between groups are perceived to be unstable (i.e., susceptible to change – social competition settings), ingroup identification reinforces SDO among members of both high- and low-status groups. Thus, SDO endorsement, under such contexts, may represent an ideological strategy by members of low-status groups to favor the ingroup over the outgroup (i.e., ingroup status-enhancement strategy; Carvalho et al., 2021).

Furthermore, SDT predicts that men have significantly higher SDO than women, regardless of social status, ethnic group, age, or any other demographic characteristics – known as the *invariance hypothesis* (Sidanius et al., 1994b). This is expected to occur because men tend to hold a more powerful and privileged position in society. Moreover, it is also expected SDO to be positively related with right-wing political identification (e.g., Ho et al., 2012).

Importantly, SDO is related to “a long array of sociopolitical attitudes, ideologies, opinions, beliefs, values, causal attributions, and public policy initiatives that either express support for, or opposition to, the redistribution of social value among social groups (e.g., social class, ethnic groups, “races”, genders, nations)” (Sidanius et al., 1994b, p. 196), and predicts outgroup aggression and oppression. Therefore, SDO is considered one of the most important measures to study intergroup attitudes and behavior and represents a fundamental construct to understand intergroup relations and conflict, adherence to sociopolitical ideologies and how hierarchical and unequal social systems are maintained (e.g., Ho et al., 2012). For instance, SDO has been found to be related to discrimination and prejudice against, and persecution of, minorities and low-status groups (e.g., immigrants, gays, Jews, poor people); related to the endorsement of hierarchy-enhancing ideologies such as, conservatism, sexism, and nationalism; and related to the support of punitive social policies, opposition to humanitarian practices and social welfare (Ho et al., 2012; Sidanius et al., 1996). Moreover, SDO is also related to system justification (e.g., Ho et al., 2012; Kugler et al., 2010; Jost & Thompson, 2000), that reflects the motivation to defend and justify the *status quo*, that is, motivation “to justify and rationalize the way things are, so that existing social, economic, and political arrangements tend to be perceived as fair and legitimate” (Jost & Hunyady, 2005, p. 260); and right-wing authoritarianism (RWA; e.g., Roccato & Ricolfi, 2005), that reflects strong adherence to conventions, that is, strong support and inflexible adherence to established social norms and traditional values (i.e., conventionalism); punitive attitudes toward, and support for the use of violence against those who deviate those norms and values (authoritarian aggression); and high obedience and respect to established authority (authoritarian submission) (Altemeyer, 1996).

The Social Dominance Orientation Scale

The previous SDO scale (SDO₆; Pratto et al., 1994), has been widely used and proved to be an effective and powerful measure in predicting a wide variety of individuals' attitudes and behaviors regarding intergroup relations, having already been translated into several languages and validated in many different cultures, including for European Portuguese with a Portuguese sample (Giger et al., 2015), as well as in other European countries (e.g., European Spanish with a Spanish sample by Silván-Ferrero & Bustillos, 2007).

Initially, the SDO scale was conceptualized and designed to be a unidimensional construct (Pratto et al., 1994), however, the proposed one-factor structure of the scale, although it works well as a single construct, it has been widely discussed in the literature, and growing evidence about its two-factor structure have emerged reflecting the need for this construct to be understood and conceptualized as having in fact two complementary but distinct subdimensions (Ho et al., 2012, 2015; Jost & Thompson, 2000; Kugler et al., 2010). A widely discussed aspect of the SDO₆ scale was the fact that the items seemed to reflect two different orientations corresponding to two distinct concepts and the items of each orientation was worded in opposite directions: the items in a pro-trait direction (i.e., higher scores indicated higher SDO, e.g., “In getting what you want, it is sometimes necessary to use force against other groups.”) reflected a dominance orientation, while the items in a con-trait direction (i.e., higher scores indicated lower SDO, e.g., “It would be good if groups could be equal.”) reflected an egalitarian orientation (e.g., Ho et al., 2012, 2015; Jost & Thompson, 2000). As a result, it was suggested that the bidimensional structure frequently found could be “not because of the attitudinal contents of the items *per se*, but because the items on group-based dominance [were] worded positively and the anti-egalitarian items [were] worded negatively” (Jost & Thompson, 2000, p. 220). To address this issue, Jost and Thompson (2000) developed a “balanced” scale, by slightly rewording some items, so that the two subdimensions would have equal numbers of pro-trait and con-trait items. Evidence for the two-factor solution persisted with the “balanced” version of the scale, and the results of the confirmatory factor analysis revealed that the two-factor model fitted the data better than the one-factor model. More recently and considering the previous evidence, the SDO scale was significantly changed in the new and seventh version (Ho et al., 2012, 2015) taking into account these two orientations (support for dominance and antiegalitarianism), and so that each subdimension included equal number of items in a pro-trait and con-trait direction. Moreover, items were verified, and adapted when needed, to reflect the “current conceptualization of SDO as a general orientation towards group inequality irrespective of one’s ingroup position” (Ho et al., 2015, p. 1010) instead of reflecting “the extent to which one desires that one’s ingroup dominate and be superior to outgroups” (Pratto et al., 1994, p. 742) as initially proposed. For instance, the item “Sometimes *other* groups must be kept in their place”, was replaced by “Some *groups of people* must be kept in their place” (Ho et al., 2015).

The two dimensions of SDO

By acknowledging the multidimensional nature of SDO, the new SDO₇ scale was designed so that one dimension measures support for group-based dominance hierarchies (SDO-D) and the other measures opposition to equality or antiegalitarianism in social systems (SDO-E). Although the two subdimensions should be strongly correlated, each one is linked to distinct underlying motivations and, thus, is expected to predict uniquely different intergroup phenomena. Specifically, since each component arises from different motivations, and reflect two distinct psychological orientations, it should allow to understand and predict, with more precision, intergroup attitudes, and behaviors, and explain different kinds of political views (Ho et al., 2012, 2015; Kugler et al., 2010).

Ho and colleagues (2012, p. 585) defined SDO-D “as support for group-based dominance hierarchies in which dominant groups actively oppress subordinate groups [and] will be related to phenomena such as support for aggressive intergroup behavior, support for overtly negative intergroup attitudes, support for negative allocations to outgroups, and the perception of group-based competition.”. SDO-D reflects beliefs that some groups are “superior” and “worthier” than others, that dominant groups should actively oppress subordinate groups, and preoccupation in maintaining the relative power difference between groups (Ho et al., 2012). It has also been proposed that this subdimension reflects social identity motives, such as preferences for members of own group and concerns for ingroup promotion, and thus, should be strongly related to outgroup derogation, hostile competition, and to active and forceful hierarchy promotion of the ingroup (Kugler et al., 2010).

On the other hand, “SDO-E is defined as opposition to group-based equality. This includes an aversion to the general principle of equality and to reducing the level of hierarchy between social groups. Opposition to equality translates psychologically into support for *exclusivity*. People who want groups to be unequal wish to exclude certain groups from access to resources that could elevate their social position” (Ho et al., 2012, p. 585). This subdimension is expected to reflect system justification motives, strongly associated with the desire to maintain the existing social system (i.e., resistance to change; Kugler et al., 2010), and opposition to group-based equality and to reduce the level of hierarchy between social groups (Ho et al., 2012). Indeed, SDO-E predicts legitimization and justification of stratified social systems and support for differential intergroup access to power and resources (Ho et al., 2012).

Moreover, since SDO-D and SDO-E represent distinct ideological constructs, each are expected to produce divergent social psychological outcomes for members of low-status groups and high-status groups (Ho et al., 2015; Jost & Thompson, 2000), and thus, “treating SDO as a unidimensional construct fails to

capture the ideological experiences of low status group members” (Kugler et al., 2010, p. 119). For instance, Jost and Thompson (2000) found that SDO-E was negatively related to ingroup favouritism among African Americans (low-status group) and positively related among European Americans (high-status group), while SDO-D was found positively related to ingroup favouritism among both groups (Jost & Thompson, 2000). These results suggests that although the overall SDO score is a good predictor of intergroup attitudes among members of high-status groups, it is a weaker predictor among members of low-status groups (Jost & Thompson, 2000). Bergh and colleagues (2015) attempted to replicate the previous findings with another ethnic group – Pākehā (European) and Māori New Zealanders, with the former occupying a higher social status –, however, they observed a weak and negative relations between SDO-E and ethnic identity among Pākehā (the high-status group). The authors discussed and explained these unexpected results due to the existing bicultural/multicultural national identity in New Zealand, leading to a more egalitarian (vs. mono-cultural) identity (Bergh et al., 2015).

Similar to Jost and Thompson (2000), Ho and colleagues (2015) also observed that the relationship of SDO-D and SDO-E with criterion variables was found less consistent among Black participants than among White participants.

Contrasting to previous findings, more recently, Carvalho and colleagues (2021) found SDO-E, but not SDO-D, positively related to ingroup identification and system-challenging collective action among members of both low- and high-status groups but only when status positions between groups were perceived to be unstable (i.e., the social structure condition for social competition to emerge). The authors discuss the results by stating that, under social competition settings, the endorsement of status differences between groups and the desire to maintain hierarchically structured intergroup relations among low-status groups, which is associated with the desire of low-status group members to improve their disadvantaged position within the status hierarchy in the future (i.e., SDO as an ingroup status-enhancement strategy), is more in line with SDO-E than with SDO-D (Carvalho et al., 2021).

Moreover, the conceptualization of SDO-D as a reflection of social identity motives and SDO-E as a reflection of system justification motives (Jost & Thompson, 2000; Kugler et al., 2010), may not be as straightforward and may depend on the context, identities, and group interests. For instance, evidence shows a positive association between SDO-E (but not SDO-D) and group identity, among low-status groups, in a context of social competition, motivated to improve ingroup status (Carvalho et al. 2021); a positive association between both SDO-D and SDO-E and Catalan Nationalism among independence supporters (a group subordinate to the central power of Madrid, the dominant group) (Carvalho et al., 2022); a positive association between SDO-D and (general) system justification, among a disadvantaged group interested in achieving equality between groups (Carvalho et al., 2023), and between SDO-D and gender-specific system justification among both low- and high-status group (Māori and Pākehā, respectively; Bergh et al., 2015).

Therefore, as emphasized by the authors (Ho et al., 2015, p. 1023), when “researchers do not have a specific focus on intergroup phenomena that relate more to one dimension of SDO versus the other, it would be desirable to use the whole SDO₇ scale”. On the contrary, when studying intergroup phenomena, examining each dimension separately can offer clarity regarding the underlying motivations depending on the social context (e.g., features of the social structure), salient identities, and ingroup status, especially among low-status groups, and at the same time allows to predict more accurately intergroup attitudes and behaviours (Ho et al., 2015).

The present study

The aim of this study was to a) adapt and validate the new SDO₇ scale into the European-Portuguese language, b) examine the factorial structure of the scale, considering one-factorial structure and the proposed two-factorial structure of the new scale, and c) analyze the relation between SDO and related constructs (construct validity). As proposed by Ho and colleagues (2015), we expect that the two-factor model will fit the data well. Moreover, RWA and nationalism are expected to correlate more strongly with SDO-D than with SDO-E, since conceptually SDO-D reflects support for dominance and oppression of subordinated groups, as well as beliefs that some groups are “superior” and “more worthy” than others; and system justification and meritocracy are expected to correlate more strongly with SDO-E than with SDO-D, because conceptually SDO-E is related to hierarchy-enhancing ideologies and beliefs that allow to legitimate and maintain inequality between groups (e.g., Ho et al., 2015; Jost & Thompson, 2000; Kugler et al., 2010).

METHOD

Participants

Participants were 313 Portuguese nationals (187 female, 126 male) aged between 18 and 79 years-old ($M = 30.33$, $SD = 14.05$). We discarded 13 participants who had outliers scores in items 10, 13, and 15 of the SDO₇ scale. The final sample is composed by 300 participants (182 female, 118 male) aged between 18 and 79 years-old ($M = 29.91$, $SD = 13.99$), 51% completed secondary education, 42% higher education, and less than 1% basic education. The majority were student (58%) and employed (34%), and the remaining were unemployed (5%), retired (2%) and homemaker (1%). Regarding the left-right political spectrum, the average score on a 7-point Likert-scale (1 = *Left*, 7 = *Right*), was close to the scale midpoint of 4, though leaning left ($M = 3.77$, $SD = 1.23$). Participants were also asked about perceived socioeconomic status compared to other citizens of the country where they live on a 7-point Likert-scale (1 = *Very low*, 7 = *Very high*; around the scale midpoint, $M = 4.16$, $SD = 1.01$).

Procedure

Due to difficulties in recruiting participants, data collection was conducted both using an online survey platform (Qualtrics) and in-person (pencil-and-paper survey). In the first case, participants were contacted via online platforms (participation invitations with a link to the online questionnaire, were shared through Facebook Ads, Facebook groups, and University mailing list), and in the second, participants were **recruited to participate in the study as a curricular activity** (large group in a classroom). In both cases, participation was completely voluntary. After giving informed consent (including information on confidentiality, anonymity, risks and benefits, contact information, etc.), participants provided demographic information (e.g., age, sex, education). On completion, participants were thanked.

The research from which this data was extracted followed the American Psychological Association's ethical principles and code of conduct (2017, 2020), and all methods were performed in accordance with the relevant guidelines and recommended regulations.

Measures

SDO₇ scale. Prior to initiate any procedure, the first author of the original scale (SDO₇, Ho et al., 2015) was contacted in order to obtain his approval for the Portuguese validation¹. Similar to the previous version, the SDO₇ scale is composed by 16 items, with the first eight items corresponding to the SDO-D subdimension (item 1-8) and the last eight (9-16) corresponding to the SDO-E subdimension, answered on a 7-point Likert-scale (1 = *I strongly oppose*, 7 = *I strongly favor*), where higher scores indicate higher agreement or preference for group-based dominance hierarchies and opposition to equality between groups, respectively. Items 1-4 represent pro-trait dominance and 5-8 con-trait dominance items; 9-12 represent pro-trait anti-egalitarianism and 13-16 con-trait anti-egalitarianism items. The con-trait items were reverse-scored before computing a composite subscale mean. Following previous recommendations for existing scales validation (e.g., Fenn et al., 2020; ITC, 2017), the scale was translated from the original English into European-Portuguese by one of the researchers (native Portuguese fluent in English) and by a professional translator. The two translations were compared, and some adjustments were made by a second experienced researcher (also native Portuguese fluent in English). Next, the Portuguese version was back-translated by another professional translator. The two versions (original and retranslated) were compared and discussed. The European-Portuguese version was again analyzed, revised, and adapted in accordance with the contributions discussed by the researchers and translators. The revised version was pilot tested on a small sample ($N = 51$, not included in the final sample) to assess its adequacy and comprehensibility. At the end of the questionnaire, the respondents were asked (using open-ended question) whether they understood all the items and to indicate any doubts or difficulty in comprehensibility. No participant reported difficulties or doubts in understanding the items. The final version can be seen in Table 1.

Table 1. Translation of the SDO₇ into European-Portuguese.

Original (English) version (Ho et al., 2015)	European-Portuguese version
Instructions: Please indicate how much you support or oppose each idea below, by selecting a number from 1 to 7 on the following scale. You may answer quickly; your first thought is usually best.	Instruções: Indique o quanto você apoia ou se opõe a cada ideia abaixo, selecionando um número de 1 a 7 na escala que se segue. Você pode responder rapidamente; o seu primeiro pensamento é geralmente melhor.
SDO 1. Some groups of people must be kept in their place.	SDO 1. Alguns grupos de pessoas devem ser mantidos no seu lugar.
SDO 2. It's probably a good thing that certain groups are at the top and other groups are at the bottom.	SDO 2. É provavelmente uma coisa boa que certos grupos estejam numa posição superior e que outros grupos estejam numa posição inferior.
SDO 3. An ideal society requires some groups to be on top and others to be on the bottom.	SDO 3. Uma sociedade ideal requer que alguns grupos estejam numa posição superior e que outros grupos estejam numa posição inferior.
SDO 4. Some groups of people are simply inferior to other groups.	SDO 4. Alguns grupos de pessoas são simplesmente inferiores a outros grupos.
SDO 5*. Groups at the bottom are just as deserving as groups at the top.	SDO 5*. Grupos que estão numa posição inferior são tão meritórios como os grupos que estão numa posição superior.
SDO 6*. No one group should dominate in society.	SDO 6*. Nenhum grupo deveria dominar na sociedade.
SDO 7*. Groups at the bottom should not have to stay in their place.	SDO 7*. Os grupos que estão numa posição inferior não deveriam ter de ficar no seu lugar.
SDO 8*. Group dominance is a poor principle.	SDO 8*. O domínio de grupos é um mau princípio.
SDO 9. We should not push for group equality.	SDO 9. Não deveríamos insistir na igualdade entre os grupos.
SDO 10. We shouldn't try to guarantee that every group has the same quality of life.	SDO 10. Não deveríamos tentar garantir que todos os grupos tenham a mesma qualidade de vida.
SDO 11. It is unjust to try to make groups equal.	SDO 11. É injusto tentar tornar os grupos iguais.
SDO 12. Group equality should not be our primary goal.	SDO 12. A igualdade entre os grupos não deveria ser o nosso principal objetivo.
SDO 13*. We should work to give all groups an equal chance to succeed.	SDO 13*. Deveríamos trabalhar para dar a todos os grupos uma oportunidade igual de ter sucesso.
SDO 14*. We should do what we can to equalize conditions for different groups.	SDO 14*. Deveríamos fazer o possível para igualar as condições dos diferentes grupos.
SDO 15*. No matter how much effort it takes, we ought to strive to ensure that all groups have the same chance in life.	SDO 15*. Independentemente do esforço necessário, deveríamos lutar para garantir que todos os grupos têm a mesma oportunidade na vida.
SDO 16*. Group equality should be our ideal.	SDO 16*. A igualdade entre os grupos deveria ser o nosso ideal.

* Con-trait items.

Note. The proposed short version of the SDO_{7(s)} scale is composed by items 3, 4, 5, 6, 11, 12, 13, 14 (Ho et al., 2015, Appendix B).

Right-wing Authoritarianism (Short Scale)². To measure participants' endorsement of right-wing authoritarianism (RWA), we used ten of the 15-item short scale developed by Zakrisson (2005; e.g., "Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today."; 1 = *I fully disagree*; 7 = *I fully agree*). We excluded 5 items for being difficult to adapt to the European/Portuguese context. The scale is reliable (Cronbach's $\alpha = .79$; $\omega = .77$; $M = 3.10$, $SD = 0.95$), and therefore we averaged these items into a RWA score, where higher scores indicated higher levels of authoritarian attitudes.

Nationalism. To measure participants' nationalism (Portugal), we used Terhune's 7-item scale (1964; e.g., "My country should strive for power in the world."; 1 = *I fully disagree*; 7 = *I fully agree*). The scale is reliable (Cronbach's $\alpha = .77$; $\omega = .76$; $M = 4.49$, $SD = 1.03$), and therefore we averaged these items into a nationalism score, where higher scores indicated higher levels of nationalist sentiments towards Portugal.

System Justification. Participants completed the 8-item general system justification scale (e.g., "In general, you find society to be fair."; Kay, & Jost, 2003; 1 = *I fully disagree*; 7 = *I fully agree*), that measures perceived fairness, legitimacy, and justification of the existing social hierarchical system. The scale is reliable (Cronbach's $\alpha = .74$; $\omega = .72$; $M = 3.17$, $SD = 0.89$), and therefore we averaged these items into a system justification score, where higher scores indicated higher levels of system justification tendencies.

Meritocracy. Finally, participants answered to a 6-item meritocracy scale (Castillo et al., 2019; e.g., "In [country] people are rewarded for their intelligence and skills."; 1 = *I fully disagree*; 7 = *I fully agree*). The scale presented questionable reliability (Cronbach's $\alpha = .66$, $\omega = .56$; $M = 4.24$, $SD = 0.86$; see Data Analytic Strategy section below), which would not improve with the exclusion of any item. Nevertheless, we present the results of correlations with this scale, emphasizing the need for cautious interpretation. Therefore, we averaged these items into a meritocracy score, where higher scores indicated higher levels of meritocracy beliefs.

Data analytic strategy

The factorial structure and psychometric properties including validity and reliability of the new scale were examined. We conducted a confirmatory factor analysis (CFA), using maximum likelihood estimation procedure, for both a one-factor (unidimensional structure with all the items loading on one common factor) and a two-factor solution (two-dimensional structure with items loading respectively on two independent correlated factors - SDO-D and SDO-E). The goodness-of-fit of each model (one-factor vs. two-factor solution) was evaluated through multiple criteria (e.g., West et al., 2012), such as chi-square and the ratio of the chi-square to its degree of freedom (CMIN/DF), comparative fit index (CFI), root mean square error of approximation (RMSEA), and the Akaike Information Criterion (AIC). According to previous recommendations, CMIN/DF should be ≤ 3 (Kline, 1998), indicating an excellent fit between the proposed model and the sample data. Typically, for the CFI, values $\geq .90$ indicate a good fit of the data to the model (Bentler, 1990). For the RMSEA, values of 0 (zero) indicate a perfect fit, values $\leq .05$ indicate "close fit" or "good fit", up to .08 indicate a reasonable fit, and values $\geq .10$ suggest a poor fit (Brown, 2015; Browne & Cudeck, 1992; West et al., 2012; Whittaker, & Schumacker, 2022). Finally, the AIC is used to compare two or more models with smaller values indicating a better fit, and the model most likely to replicate (Hu & Bentler, 1995; Kline, 2016). In accordance with previous recommendations (e.g., Brown, 2015; Gerbing & Anderson, 1984; Kang, & Ahn, 2021; Whittaker, 2012), Modification Indices (MI > 10) were taken into consideration to perform post-hoc modifications. Only associations among errors from the same dimension were considered (i.e., correlating within-factor errors) and additional parameters between errors were added, considering the highest MI, one by one, in sequential order, to avoid overfitting. MI inspection was repeated until no additional parameters between errors were necessary.

The internal consistency reliability of the new SDO₇ scale (of the full scale and each subdimension), and the correlated constructs, was examined with Cronbach's Alpha and McDonald's Omega, being internal reliability of $> .70$ considered acceptable (Cronbach & Meehl, 1955; McDonald, 1999).

Finally, we analyzed the construct validity of the new SDO₇ scale, by examining the relationship of each subdimension with other theoretically related measures (see Boateng et al., 2018 for a review on construct validity procedures): right-wing authoritarianism (RWA), nationalism, system justification, and meritocracy. Pearson's correlation coefficient was used to assess the strength of association between each SDO subdimension and the related constructs.

RESULTS

Confirmatory Factor Analysis (CFA)

A CFA was performed to assess goodness-of-fit of both one-factor and two-factor solution models. In the one-factor solution model, MI suggested correlating error terms 1<->4, 2<->3, 6<->8, 10<->16, 11<->12, 13<->14, 13<->15³. In the two-factor solution (see Figure 1), MI suggested correlating error terms 1<->4, 5<->7, 6<->8, 10<->16, 11<->12, 13<->14, 13<->15.

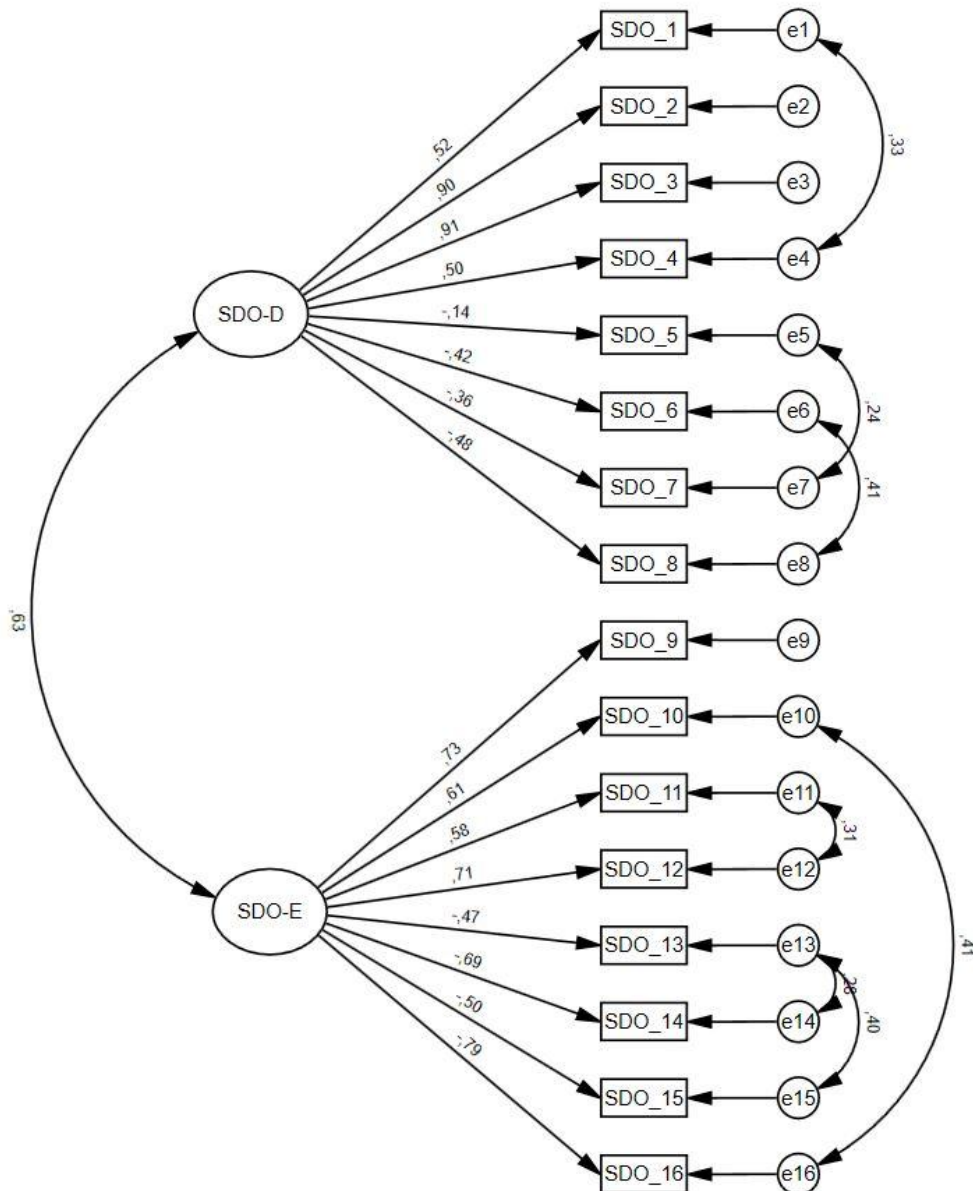


Figure 1. CFA of the SDO₇ Scale: Two-Factor Solution Model.

Both the one-factor solution model, $\chi^2(df) = 283.98(97) p \leq .001$, CMIN/DF = 2.93, CFI = .901, RMSEA = .080 90% CI [0.07, 0.09] $p \leq .001$, AIC = 361.98, and the two-factor solution model, $\chi^2(df) = 241.32(96) p \leq .001$, CMIN/DF = 2.51, CFI = .923, RMSEA = .071 90% CI [0.06, 0.08] $p \leq .001$, AIC = 321.32, fit the data in a good and similar way, although, the two-factor solution model tended to slightly reveal a better fit pattern to the data (AIC = 321.32) than the one-factor solution model (AIC = 361.98). The factor loadings for each model are shown in Table 2.

Table 2. Means and standard deviations of all items, CFA factor loading on the SDO₇ Scale.

	<i>M</i>	<i>SD</i>	CFA loadings	
			One-factor model	Two-factor model
Pro-trait dominance				
SDO 1	3.27	1.77	.47***	.52***
SDO 2	3.07	1.70	.59***	.90***
SDO 3	3.09	1.79	.59***	.91***
SDO 4	2.33	1.73	.46***	.50***
Con-trait dominance				
SDO 5	5.57	1.63	-.28***	-.14*
SDO 6	5.05	1.93	-.35***	-.42***
SDO 7	5.12	1.49	-.42***	-.36***
SDO 8	4.99	1.67	-.45***	-.48***
Pro-trait anti-egalitarianism				
SDO 9	2.37	1.54	.72***	.73***
SDO 10	1.90	1.35	.60***	.61***
SDO 11	2.98	1.92	.57***	.58***
SDO 12	3.00	1.71	.69***	.71***
Con-trait anti-egalitarianism				
SDO 13	6.25	1.02	-.49***	-.47***
SDO 14	5.70	1.36	-.69***	-.69***
SDO 15	6.11	1.04	-.51***	-.50***
SDO 16	5.24	1.51	-.78***	-.79***
SDO-D	2.88	1.08		
SDO-E	2.37	1.01		
SDO _{total}	2.62	0.94		

Note. Standardized regression weights.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Reliability and descriptive statistics

All the con-trait items were reversed-coded before we averaged participant's response to SDO-D and SDO-E scores. The average of all the items was also computed in a single score (SDO_{total}). Cronbach's alpha was .78 for SDO-D, .85 for SDO-E, and .88 for SDO_{total}. McDonald's Omega was .77 for SDO-D, .85 for SDO-E, and .87 for SDO_{total}. These values are very similar to those found in another European sample, the Italian adaptation of the scale (Aiello, et al., 2019).

Although SDT expects men to display higher SDO scores than women, no differences were found regarding SDO-D ($M_w = 2.85$, $SD_w = 1.02$; $M_m = 2.92$, $SD_m = 1.17$), $t(298) = .53$, $p = .595$; SDO-E ($M_w = 2.32$, $SD_w = 0.97$; $M_m = 2.44$, $SD_m = 1.08$), $t(298) = 1.02$, $p = .309$; or SDO_{total} ($M_w = 2.59$, $SD_w = 0.88$; $M_m = 2.68$, $SD_m = 1.02$), $t(298) = 1.02$, $p = .309$. Bivariate correlations showed that only SDO-E was positively correlated with age (i.e., as age increases, so do SDO-E scores), and, as expected, political orientation was positively correlated with both subdimensions (i.e., individuals' SDO scores increase the more politically oriented to the right). Moreover, although SDT would expect SDO to increase the higher the participants' status, none of the subdimensions nor the full scale were correlated to perceived status.

As expected, SDO-D strongly correlates with SDO-E ($r = .61$, $p \leq .001$). Moreover, as we can see in Table 3, SDO_{total} was positively correlated with all the related constructs. However, analyzing the correlations with each subdimension, we observe that Nationalism correlates more strongly with SDO-D than with SDO-E. As expected, System justification and Meritocracy correlates more strongly with SDO-E than with SDO-D. We also observe that RWA correlates with both SDO-D and SDO-E.

Table 3. Means, standard deviations and correlations between measures.

	<i>M</i>	<i>SD</i>	<i>SDO-D</i>	<i>SDO-E</i>	<i>SDO_{total}</i>
Sex	---	---	.03	.06	.05
Age	29.91	13.99	-.03	.14*	.06
Political orientation	3.77	1.23	.31***	.37***	.38***
Perceived status	4.16	1.01	.07	.07	.08
RWA	3.10	0.95	.42***	.46***	.49***
Nationalism	4.49	1.03	.15**	.07	.12*
System justification	3.17	0.89	.11†	.20***	.17**
Meritocracy	4.24	0.86	.10†	.13*	.13*

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Note: Sex variable coding (1 = female, 2 = male)

DISCUSSION AND CONCLUSIONS

The present research aimed to assess the psychometric proprieties of the European-Portuguese version of the SDO₇ scale. Firstly, we conducted the translation of the scale followed by back-translation method to detect any inaccuracy or ambiguity on the interpretation of the items, words, and expressions, or possible different meaning, due to cultural differences. This process involved two experienced researchers (fluent in both languages) and two professional translators. Then, the final version was pilot tested on a small sample prior to conducting the main study.

In order to analyze the factorial structure of the instrument, we performed a confirmatory factor analysis (CFA). Then, we examined the internal consistency reliability of the European-Portuguese version of the SDO₇ scale (full scale and each subdimension) and the construct validity by examining the relationship of each subdimension (and full scale) with other theoretically related measures, such as, RWA, nationalism, system justification, and meritocracy.

Results of the CFA showed that both the one-factor solution model and the two-factor solution model have good indicators of model fit. Moreover, by examining the Cronbach's alpha and McDonald's Omega we observed that both the full scale (single score) and each subdimension (SDO-D and SDO-E) revealed good internal reliability. Thus, depending on the aim of the research, the European-Portuguese version of the SDO₇ scale can be used as a unidimensional construct (with a single score) or considering its two subdimensions. These results are consistent with those found for the Italian version of the SDO₇ scale (Aiello et al., 2019).

Results also showed that, as expected by more traditional conceptualizations, SDO_{total} was positively correlated with all the related constructs (RWA, nationalism, system justification, and meritocracy). However, consistently with the new conceptualization and more recent evidence, we observed a positive correlation between Nationalism and SDO-D, and not with SDO-E; and both system justification and meritocracy were positively correlated with SDO-E but not with SDO-D. RWA was positively correlated with both SDO-D and SDO-E. Thus, although the SDO₇ scale can be used as a single score construct, considering the two subdimensions (SDO-D and SDO-E) and examining the two separately, provides a more comprehensive understanding and predictive capability regarding intergroup attitudes and behaviors, enabling a better understanding and explanation of various political perspectives (Ho et al., 2012, 2015; Kugler et al., 2010). Indeed, each dimension is expected to predict different intergroup phenomena (e.g., Ho et al., 2012, 2015).

Limitations

In spite of the satisfactory psychometric proprieties of the European-Portuguese version of the SDO₇ scale, the present study has some limitations that should be acknowledged.

Due to difficulties in data collection, it was not possible to obtain a larger *sample* (*convenience sample*), and the majority of the participants were students (58%). Thus, our results are not representative of the Portuguese population.

Another potential limitation, raised by one of the reviewers, is related to our data-driven approach, namely, the use of modification indices (MIs) for model refinement. While analyzing MIs is a common practice, serving as a valuable tool to identify sources of misfit in a model, there are inherent risks associated with exclusively relying on data-driven modifications. Specifically, we acknowledge the risks of overfitting and model inflation that may arise from indiscriminately accepting all modifications suggested by MIs. To address these concerns, we systematically added additional parameters between errors one by one in sequential order to prevent overfitting. Furthermore, we balanced between data-driven insights and

theoretical grounding in our model refinement process. While we considered MIs as indicators of potential areas for improvement, we also critically evaluated each modification in light of established theoretical frameworks, as recommended (e.g., Brown, 2015; Kline, 2016; Whittaker, 2012). By adopting these procedures, we believe that we have mitigated the risks associated with MIs, thereby ensuring that our final model remains both statistically sound and theoretically meaningful. Nonetheless, adjustment indices without applying this approach are also provided.

Nevertheless, despite these limitations, the European-Portuguese version of the SDO₇ scale proved to be reliable and can be applied in future research namely to assess individuals' support for social inequality and their views and beliefs about intergroup relations.

Declaration of interest statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability

The data described in this article will be made available upon request to the authors.

Footnotes

1. All the procedures for the validation of the European-Spanish of the scale were also initially conducted. However, due to great difficulty in obtaining participants, the validation was not concluded. Nevertheless, the European-Spanish version of the scale (along with a description of the procedures) is also openly available at the online supplementary materials (OSM) at <https://osf.io/mxza5/>
2. RWA, Nationalism, System Justification, and Meritocracy scales were translated into Portuguese, by one of the researchers and back-translated by another experienced researcher. The two translations were compared, and some adjustments were made by a third experienced researcher.
3. Before model modification, models' fit was weak: one-factor solution model, 1, χ^2 (df) = 711.59 (104), $p \leq .001$, CMIN/DF = 6.84, CFI = .678, RMSEA = .140 90% CI [.13, .15] $p \leq .001$, AIC = 775.59; two-factor solution model, χ^2 (df) = 476.66 (103), $p \leq .001$, CMIN/DF = 4.63, CFI = .802, RMSEA = .110 90% CI [.10, .12] $p \leq .001$, AIC = 542.66.

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Catarina L. Carvalho: Conceptualization; Data Curation; Formal analysis; Funding acquisition; Investigation; Methodology; Writing - Original Draft; Writing - Review & Editing. **Isabel R. Pinto:** Conceptualization; Investigation; Methodology; Writing - Review & Editing. **Rui Costa-Lopes:** Conceptualization; Investigation; Methodology; Writing - Review & Editing. **Dário Páez:** Conceptualization; Investigation; Methodology; Writing - Review & Editing.

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Impacto da Pandemia Covid-19 nas Experiências dos Estudantes do Ensino Superior: Um Estudo Qualitativo em Contexto Angolano

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Resumo: Os efeitos psicológicos da pandemia Covid-19 nos estudantes do Ensino Superior (ES) têm sido associados a condições relacionadas com o desenvolvimento do jovem adulto e com as alterações nas práticas e dinâmicas académicas. O impacto destas condições raramente é contextualizado no conhecimento cultural das populações estudadas. Este estudo teve como objetivo compreender a perceção dos estudantes angolanos sobre as suas experiências académicas durante a pandemia Covid-19. A recolha de dados foi realizada através de questionário aberto, administrado via internet. Foi realizada uma análise temática das respostas dos estudantes que permitiu identificar 3 temas centrais: Experiência académica difícil de perda e de ameaça, Preocupações e dificuldades específicas para além da vida académica e Recursos para enfrentar o período de confinamento. Os resultados do estudo são discutidos considerando a sua congruência com os resultados de outros estudos similares e contextualizando a especificidade dos subtemas emergentes em dimensões da cultura angolana.

Palavras-chave: Pandemia Covid-19; Ensino Superior; Experiência dos Estudantes; Angola.

Impact of the COVID-19 Pandemic on the Experiences of Higher Education Students: A Qualitative Study in the Angolan Context: The psychological effects of the COVID-19 pandemic on higher education (HE) students have been linked to young adult development and to changes in academic practices and dynamics. The impact of these conditions is rarely contextualized within the cultural knowledge of the populations being studied. This study aimed to understand the perceptions of Angolan students regarding their academic experiences during the COVID-19 pandemic. Data were collected through an open-ended questionnaire administered online. A thematic analysis of students' responses was conducted, which identified three central themes: The difficult academic experience of loss and threat, Specific concerns and challenges beyond academic life, and Resources for coping during the confinement period. The study's findings are discussed in light of their alignment with the results of similar research and through contextualization of the specific emerging subthemes within dimensions of Angolan culture.

Keywords: COVID-19 Pandemic; Higher Education; Student Experience; Angola.

A pandemia Covid-19 que teve início nos finais de 2019, na China, na província de Hubei, e em pouco tempo espalhou-se por todo o mundo, o que levou a Organização Mundial de Saúde (OMS) a decretar, em março de 2020, um estado de pandemia. Em Angola, os primeiros casos foram identificados em abril de 2020. Esta pandemia tem causado mudanças consideráveis no funcionamento da sociedade, resultantes das medidas tomadas para se conter a propagação da doença, com impacto ao nível da saúde, da economia e da educação (Ferreira et al., 2020). Em Angola, estas medidas incluíram a limitação da circulação das pessoas em todo o país, o encerramento de todos os estabelecimentos comerciais, incluindo os mercados informais, o encerramento de todos os estabelecimentos de ensino, confinamento físico e social.

Estudos realizados em vários países, no contexto das instituições de Ensino Superior (ES), relatam alterações substanciais no processo de ensino-aprendizagem, como consequência das medidas tomadas para se conter a propagação da doença (Aristovnick et al., 2020; Ferreira et al., 2020, Gudim et al., 2021). O ES em Angola não foi exceção, sendo as medidas implementadas similares às conhecidas em outros países. No entanto, até à data de realização do presente estudo não era conhecido nenhum estudo sobre o efeito da pandemia nos estudantes do ES angolano. A ideia do presente estudo surgiu do reconhecimento das implicações que a paralisação das atividades letivas, devido à Covid-19, teria na vida pessoal e académica dos estudantes angolanos e da necessidade de as compreender na perspetiva dos próprios estudantes. Embora a literatura sobre os efeitos do confinamento físico e isolamento social dos estudantes do ES na

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sua saúde mental seja relativamente vasta, a maioria dos estudos conhecidos são de natureza quantitativa (Phiriepa et al., 2023) e poucos se referem ao enquadramento cultural das experiências dos estudantes. O presente estudo procurou responder a esta falha na literatura, colocando como objetivo principal compreender a perceção dos estudantes angolanos sobre a sua experiência das alterações gerais de vida provocadas pela pandemia e em particular das de natureza académica. Além disso procurámos entender as perspetivas dos estudantes, enquadrando-as na cultura angolana em geral e nas especificidades da região onde os participantes vivem (centro-sul de Angola). Por outro lado, sendo este o primeiro estudo de natureza qualitativa sobre os efeitos da pandemia nos estudantes do ES angolano, na região académica centro-sul do país, trata-se de um estudo inovador, com implicações práticas para o contexto angolano, numa cidade culturalmente conhecida como cidade académica, pela existência de um elevado número de estudantes universitários (17637 matriculados, segundo o anuário do ES de Angola em 2019) e maior número de IES públicas, depois da cidade de Luanda.

Impacto da pandemia Covid-19 nas experiências dos estudantes do ensino superior

Os vários estudos de investigação realizados a propósito do impacto da pandemia Covid-19, em diversas áreas da vida, sugerem que algumas medidas de controlo e prevenção implementadas durante a pandemia, embora necessárias, resultaram numa interrupção significativa de várias atividades da vida humana (e.g., Irawan et al., 2020). Se, por um lado, não há dúvidas que as medidas preventivas da infeção foram importantes para conter a pandemia, por outro lado, também parece ser consensual que podem ter gerado experiências difíceis de suportar em termos pessoais, familiares, sociais e financeiros (Ribeiro et al., 2020).

No caso dos jovens adultos e em particular os estudantes do ES, sabe-se que as medidas de proteção, em especial o confinamento físico e consequente isolamento social, podem ter interferido com tarefas de desenvolvimento psicológico e com tarefas académicas típicas dos estudantes do ES. Em geral, os estudantes do ES, serem jovens adultos, não são considerados um grupo de risco para o desenvolvimento de problemas de saúde física como consequência da infeção por Covid-19 (Ihm et al., 2021), mas são considerados um grupo de risco para problemas de saúde mental (Duffy et al., 2019; Morales & Lopez, 2020). Devido a diferentes condições relacionadas com as alterações de vida em fase de pandemia, em particular a vida sociofamiliar e académica, os estudantes do ES podem ter experienciado um agravamento deste risco, pelo desequilíbrio ou mesmo a inibição de alguns dos fatores protetores da sua saúde mental, como por exemplo a restrição no suporte social percebido (Gundim, 2021; Maia & Dias, 2020; Pereira et al., 2020). Os estudantes do ES entre os 18 e os 30 anos de idade têm sido referidos como apresentando pior saúde mental em fase de pandemia (e.g., Li et al., 2020) e os relatos de um aumento da prevalência de perturbações emocionais (depressão e ansiedade) em fase de pandemia nesta população tendem a ser consistentes (e.g., Ihm et al., 2021; Maia & Dias, 2020; Ochnick et al., 2021). Assim, o aumento da prevalência de problemas de saúde mental em estudantes do ES é um claro indicador do efeito da pandemia no bem-estar e qualidade de vida deste grupo específico e alerta para a necessidade de o compreendermos em profundidade.

Em 2020, a declaração de estado de pandemia, associada ao desconhecimento sobre os efeitos da infeção e das medidas de proteção mais eficazes, precipitou experiências de sofrimento psicológico, em particular em pessoas com vulnerabilidade psicológica face à incerteza e imprevisibilidade da realidade (Ribeiro et al., 2021). O conhecimento progressivo da doença e das medidas de proteção adequadas permitiu que, para a maioria das pessoas, o sofrimento psicológico fosse temporário e paulatinamente as pessoas fossem mobilizando recursos para um melhor ajustamento às circunstâncias em que se viveu a pandemia. No entanto, os efeitos a médio e longo prazo da pandemia Covid-19 são ainda pouco conhecidos e importa continuar a investigá-los, em especial em grupos específicos, como o são os estudantes do ES.

Vários autores têm defendido que na população estudantil, em particular, o tempo de confinamento não é indiferente para o grau de impacto na sua saúde mental (Gundim et al., 2021; Ihm et al., 2021; Irawan, 2020). Gundim et al. (2021) afirmaram que o impacto do confinamento se repercutirá nos estudantes do ES, de forma geral, por muito mais tempo, mesmo depois de se considerar que a pandemia está controlada.

Desde o início da pandemia têm sido desenvolvidos vários estudos com o objetivo de estudar o seu impacto na vida dos estudantes do ES. As atividades académicas incluem-se entre as que ficaram afetadas pelas medidas de proteção, nomeadamente o confinamento obrigatório e o uso de máscaras durante as aulas (Oliveira et al., 2022). Os resultados dos vários estudos tendem a ser congruentes no sentido de identificarem impactos negativos nas atividades de natureza académica e na vida pessoal e social dos estudantes (Ferrinho, 2020; Morales & Lopez, 2020). Variáveis de natureza social e académica, como o isolamento social decorrente das medidas de proteção, a falta de informações claras por parte das autoridades sanitárias sobre a pandemia Covid-19, as mudanças repentinas na rotina diária dos estudantes, a perda de produtividade académica, as preocupações com o futuro, têm sido consideradas fontes de

stress e responsáveis pelo aumento de sentimentos de solidão, desesperança, e ansiedade nos estudantes universitários, considerando amostras com diferentes faixas etárias (e.g., Barros et al., 2021).

Os efeitos da pandemia nos estudantes do ES têm sido estudados por autores de diversas partes do mundo, desde a Ásia (e.g., Li et al., 2020), Europa (e.g., Maia & Dias, 2020), América do Norte (e.g., Hamlin & Barney 2022), América do Sul (e.g., Gundin et al., 2021) e África (e.g., Bantjes et al., 2023). No entanto, tanto quanto é do nosso conhecimento, apenas dois estudos foram realizados em Angola com esse objetivo (Morales & Lopes, 2020; Ventura & Araújo, 2022). O estudo de Morales e Lopes (2020), sendo de natureza qualitativa, foi realizado com uma amostra bastante reduzida de apenas 15 participantes, apresentando em nosso entender limitações relacionadas com a metodologia e com a contextualização cultural do estudo. O estudo de Ventura e Araújo (2022) é um estudo quantitativo, que comparou a relação entre variáveis sociodemográficas e os sentimentos durante a pandemia num grupo de estudantes e um grupo de profissionais de saúde. Este estudo apresenta resultados interessantes relativamente ao comportamento dos estudantes, mas a sua natureza descritiva apresenta limitações na compreensão cultural desses comportamentos (e.g., menor responsabilidade social face ao risco de Covid-19 por parte dos participantes masculinos). Embora com um âmbito distinto, consideramos importante referir um outro estudo realizado em Angola, que consistiu numa avaliação dos impactos socioeconómicos das medidas do executivo angolano para o combate à Covid-19 (Boio et al, 2020) que, não sendo um estudo específico com estudantes do ES, apresenta informações úteis para contextualizar a população à qual pertencem os estudantes que participaram no nosso estudo, como descreveremos mais abaixo. Por exemplo, este estudo mostrou que mais de 61% da população do Huambo acompanhou com atenção a informação sobre a Covid-19, no entanto a maioria da população não encarava os riscos da doença com a seriedade devida, de forma similar ao que acontecia com a população de Luanda e de Benguela.

Importa, pois, compreender em profundidade os fatores que durante a pandemia, colocaram em risco a saúde mental dos estudantes angolanos e como estes os experienciaram. Este conhecimento é crucial para compreender os efeitos prolongados, definir estratégias de promoção do bem-estar e de prevenção de problemas novos ao nível da saúde mental, bem como implementar respostas remediativas de situações problemáticas já instaladas.

Confinamento, isolamento social e efeitos na saúde mental dos estudantes

Vários estudos têm relatado elevada prevalência de sintomas de sofrimento psicológico em estudantes, devido à vivência do confinamento em fase da pandemia Covid-19. Por exemplo, estudos feitos na população académica da China relataram uma prevalência elevada de sintomas de stress, depressão, ansiedade, frustração e insónia (Li et al., 2020). Estes efeitos psicológicos, também identificados em estudos realizados em outros países, têm sido associados a diferentes fatores associados ao confinamento. Por exemplo, Aristovnick et al., (2020) e Irawan et al., (2020), verificaram que os sintomas psicológicos manifestados durante o tempo de confinamento estavam associados à perda da rotina diária habitual. Outros autores têm concluído que o confinamento e o consequente isolamento social, as mudanças na estrutura e dinâmica das atividades letivas e a interrupção ou a incerteza gerada relativamente ao futuro são fatores responsáveis pelo impacto negativo na saúde psicológica dos estudantes, manifestado através de sentimentos de tristeza, medo, opressão, tédio, frustração, ansiedade, desesperança, desamparo e raiva, além de dificuldades de concentração (e.g., Aristovnick et al., 2020; Gundim et al., 2021). Dois estudos realizados por Maia e Dias (2020) em estudantes universitários portugueses, um antes da pandemia Covid-19 e o outro no princípio da pandemia Covid-19, permitiram concluir que os estudantes no período pandémico demonstraram níveis significativamente mais elevados de depressão, ansiedade e stress. Os mesmos autores discutiram os efeitos do confinamento e do isolamento social na manifestação de psicopatologia, concluindo que importa investigar sobre este fenómeno para que se possam perceber os mecanismos e reações psicológicas subjacentes a um período de vida tão atípico e desafiante, no contexto universitário. A falta de apoio social no processo de aprendizagem, decorrente do confinamento e isolamento social tem sido relatada como estando associada a experiências de dificuldades emocionais, por parte dos alunos (e.g. Irawan et al., 2020; Pieh et al., 2020).

Para além do efeito consistentemente relatado do confinamento e isolamento social na qualidade da saúde mental dos estudantes do ES, vários estudos referem, também, o impacto destas condições nas vivências académicas. Estudos feitos por Gundim et al. (2021) e por Aristovnick et al. (2020) apresentaram resultados reveladores de um sentimento de incapacidade de assimilar conteúdos académicos e dificuldades de concentração durante o isolamento social. Um estudo realizado por Oliveira et al. (2022) revelou que estudantes que se encontravam em isolamento social apresentavam preocupação com a necessidade de sair de casa e um padrão de sono alterado, com consequente prejuízo para as tarefas académicas. Morales e Lopez (2020), nas suas pesquisas na Escola Superior Pedagógica do Bengo em Angola, concluíram que o simples conhecimento da existência do surto da Covid-19, por si só, constituiu

uma experiência perturbadora com efeitos adversos sobre a saúde física e psicológica de qualquer pessoa. No caso dos estudantes do ES, os autores concluíram que, a falta do contato com os colegas gerou desânimo e diminuição no desempenho académico.

Alterações na estrutura das atividades e efeitos na saúde mental dos estudantes

Para mitigar os efeitos da paralisação das aulas e dar continuidade às atividades letivas, em vários países, as Universidades foram obrigadas a reorganizar as modalidades de ensino vigentes até à pandemia. Esta reformulação foi repentina e urgente, exigindo dos vários elementos envolvidos na gestão e na implementação do processo de ensino-aprendizagem (alunos, professores, gestores, funcionários) um esforço acrescido para aprenderem novas formas de ação e de estudo (e.g. Ferreira et al., 2020; Maia & Dias, 2020). As alternativas criadas envolveram o conhecimento e uso de tecnologias que permitissem a realização das atividades de ensino-aprendizagem em formato online. Apesar das vantagens do ensino à distância permitido pelas tecnologias, esta modalidade de ensino-aprendizagem limitava a interação física, não facilitando a interação social. As condições ou a motivação de alguns estudantes para participarem ativamente nas aulas online, ligando a sua câmara, nem sempre foram bem conseguidas, gerando insatisfação, quer em docentes quer em estudantes. A insatisfação dos estudantes com o ensino à distância foi relatada em vários estudos, que encontraram queixas sobre a sobrecarga de trabalho associada a esta modalidade de ensino, sobre as dificuldades sentidas no uso da tecnologia e sobre a ausência ou acesso limitado a dispositivos para a participação nas atividades letivas (e.g., Aristovnick et al., 2020, Irawan et al., 2020; Morales & Lopez, 2020; Phiriepa et al., 2023).

As pesquisas feitas por Irawan et al. (2020) e Morales e Lopez (2020), revelaram que os alunos sentiram-se cansados logo nas primeiras semanas de aulas online, devido a uma considerável ansiedade sobre os temas a estudar, sobretudo aqueles alunos cujo rendimento familiar mensal não era suficiente para manterem ativa a internet. De acordo com os resultados da pesquisa feita por Aristovnick et al. (2020), em 62 países, a falta de internet associada a falta de conhecimento e domínio da informática pela maioria dos alunos e também por parte de alguns professores não permitiu a realização das aulas online de igual modo para todos. Entretanto, a aprendizagem online exige organizar o conteúdo e os métodos de aprendizagem de acordo com o novo modo de ensino, para que os alunos não se sintam isolados e sozinhos no processo de aprendizagem (Aristovnick et al., 2020, Irawan, 2020). De acordo com os mesmos autores, a falta de autocontrolo e autodisciplina ou o ambiente de aprendizagem inadequado, evoca uma sensação de sobrecarga de trabalho e, consequentemente, um nível mais alto de stresse. Para Al-Tammemil (2020) e Iorio et al. (2020), a organização desta nova modalidade de ensino-aprendizagem exige uma adaptação no manuseio das ferramentas utilizadas e uma motivação para o efeito, que falha em alguns alunos e lhes causa ansiedade e stresse. Por seu lado, os alunos com altos níveis de sofrimento psicológico têm menor motivação para o estudo à distância, podendo criar-se um ciclo vicioso (Al-Tammemil et al., 2020). Além disso, outras implicações académicas do confinamento e isolamento social prolongam-se para além desse período. Segundo Rosa et al. (2021), o longo tempo que separou os alunos do contato entre si e com os professores motivou muitos deles a congelarem as suas matrículas. Aqueles alunos que não tinham bolsa de estudo, cuja sustentabilidade da sua formação dependia essencialmente dos pais ou outros familiares, recebiam que a perda de rendimentos provocada pela pandemia pudesse impedir a sua permanência na vida académica (Iorio et al., 2020).

Apesar do impacto negativo que o estudo por via de internet causou em muitos estudantes, Ferrinho et al. (2020) considera que nas Universidades que já praticavam a formação à distância, este impacto não foi verificado de forma tão acentuada, na maioria dos estudantes. Por exemplo, em algumas Universidades do Reino Unido, durante a pandemia Covid-19, muitos estudantes mostraram mecanismos de confronto favoráveis, sendo que altos níveis pré-existentes de autoeficácia e a prática de exercício físico mostraram ser determinantes positivos de resiliência da saúde mental dos alunos (Ihm, et. al., 2021).

Em geral, a literatura internacional sobre o impacto da pandemia no ES permite concluir que a situação de confinamento e as suas implicações ao nível da organização do ES geraram vivências académicas e pessoais negativas por parte dos estudantes e com impacto na sua saúde mental e nos seus percursos de vida.

Diversidade cultural em angola e o seu papel na resposta à doença

Angola é um país caracterizado por diversas culturas, devido à sua constituição geográfica. O povo angolano está dividido em função das línguas locais (bantus) que servem de veículo de transmissão de valores e culturas específicas. Esta diversidade cultural manifesta-se, também, nas atitudes e comportamentos face à doença e aos tratamentos. Por exemplo, perante situações de doença, as populações que se encontram nas zonas mais rurais têm recursos diferentes das populações mais urbanas. As populações mais rurais

podem recorrer a plantas medicinais (Longuenda, 2014), podem apresentar crenças relacionadas com ancestrais já falecidos, acreditando que agir de acordo com certos rituais pode ter efeitos na saúde física ou emocional. Por seu lado, embora as populações mais urbanas tenham recurso a meios médicos e a hospitais, de forma menos visível, podem usar as mesmas práticas das populações rurais, quando existe proximidade entre as suas culturas. Estas diferentes opções comportamentais face à doença e aos tratamentos estão de acordo com a perspetiva de Ramos (2007), segundo a qual, a relação do indivíduo com a saúde e a doença está dependente de uma variedade de fatores biopsicossociais e culturais. Outro aspeto cultural que nos parece importante mencionar relaciona-se com os papéis de género, em particular com a atividade do dia-a-dia da mulher. A mulher angolana, para além da provisão do lar, tem a responsabilidade completa dos cuidados do próprio lar, ou seja, prepara os alimentos, cuida da saúde dos filhos, zela pela higiene da casa (Silva & Carvalho, 2009). Apesar do estudo de Silva e Carvalho (2009) ter sido feito com mulheres da zona rural, em geral, a mulher urbana orienta-se pelo mesmo padrão cultural, mesmo quando exerce outras funções relacionadas com a vida académica ou na função pública.

Muitos dos estudantes que frequentam o ES, são oriundos quer das culturas rurais quer urbanas, sendo por isso expectável que, mesmo frequentando o ES, possam ser influenciados por valores culturais enraizados nas suas famílias de origem. Ainda que se possa antecipar algum movimento de diferenciação e autonomização de alguns dos valores culturais mais tradicionais, pode ser mais difícil aos estudantes fazê-lo em momentos de vida críticos ou em momentos de maior presença e convívio com a família, como aconteceu na altura do confinamento. Assim, é possível que os estudantes do ES tenham sido influenciados por dimensões culturais da sua família / região, tanto na perceção e aceitação da doença, como nos recursos usados para o confronto com os efeitos diretos da Covid-19, ou do impacto do confinamento. É ainda de salientar que algumas experiências culturais não são visíveis, sob pena de censura pública, mas são práticas constantes das populações angolanas. Por exemplo, durante o período da pandemia Covid-19, muitos jovens, até aos 38 anos de idade, desobedeceram ao Decreto presidencial que proibia os ajuntamentos de pessoas para se evitar a contaminação em massa. Estes jovens recorreram a idas à montanha para a prática de oração, como forma de mitigar os efeitos da pandemia Covid-19 (Jornal Angola24horas, 20 de março de 2020).

O relatório sobre avaliação dos impactos socioeconómicos das medidas do executivo angolano para o Combate à Covid-19 (Boio et al., 2020) apresenta alguns dados que são coerentes com os comportamentos mediados pela cultura, referidos acima. Em particular, os dados relacionados com a região do Huambo mostram que a população se interessava pelas informações sobre a Covid-19, afirmava confiar nas notícias televisivas, no entanto não consideravam com seriedade os riscos advindos da doença. De acordo com o mesmo relatório, durante o período da pandemia Covid-19, em comparação com outras regiões de Angola, a região do Huambo foi a que mais frequentou locais de serviço público, embora evitasse os locais com aglomerados de gente. O mesmo relatório indicou que a população ocupava o seu tempo assistindo a programas da televisão, quando estava em casa.

O presente estudo visa contribuir para a compreensão da experiência dos estudantes do ES durante a pandemia Covid-19, em particular no contexto académico, com atenção a aspetos da cultura angolana relacionados com a resposta à doença. Com esse objetivo, através de um estudo qualitativo procurámos compreender a perspetiva de estudantes angolanos, que frequentavam uma IES do Huambo (ISCED-Huambo), em relação à sua experiência de vida, em geral, e à sua experiência académica, em particular, durante a fase da pandemia Covid-19.

MÉTODO

No presente estudo procurámos responder às seguintes questões de investigação: 1) Qual é o impacto da pandemia Covid-19 percebido pelos estudantes do ES? 2) Quais são as experiências vividas pelos alunos do ES durante o período de confinamento, como medida de prevenção de Covid-19?

Participantes

Participaram neste estudo qualitativo, estudantes de todos os cursos do ISCED-Huambo, num total de 58, com idade compreendida entre 17 e 45 anos, distribuída da seguinte maneira: entre 17 e 25 anos, 42 (68,9%); entre 26 e 30 anos, 15 (24,6%), entre 31 e 40 anos, 2 (3,3%), entre 41 e 45 anos, 2 (3,3%). Destes participantes, 55% eram homens e 45% mulheres. A maioria era solteira, representando 93% e 7% casados, 75,4% estudavam no período regular e 24,6% no período pós-laboral, 52,5% ocupavam-se apenas da vida académica e 47,5% tinham estatuto de estudante trabalhador. Destaca-se que 55 (90,2%) dos participantes, viviam com os outros membros da família, 4 (6,6%) viviam sozinhos, e 2 (3,3%) viviam com os amigos.

Investigadores

A análise qualitativa dos dados foi realizada pelo primeiro autor, estudante de doutoramento da Universidade e docente do Instituto Superior de Ciências da Educação do Huambo-Angola. Os dados codificados foram auditados pela segunda autora, investigadora com conhecimento e prática na área da investigação qualitativa em psicologia e em psicoterapia.

Instrumentos

Neste estudo, usámos um questionário aberto, construído especificamente para este estudo, orientados pela revisão da literatura sobre o impacto da Covid-19 nas experiências dos estudantes, pelas questões de investigação e pelo objetivo de compreender a perspetiva dos estudantes sobre a sua experiência em fase de pandemia Covid-19. Devido às medidas de proteção impostas pela pandemia e consequente dificuldade de acesso aos estudantes, em modo presencial ou online, considerámos que o uso de um questionário com questões abertas seria mais viável do que o uso de uma entrevista. Assim, optámos por construir um questionário de cinco perguntas abertas focadas na vida académica, em particular, e na experiência pessoal, em geral. As questões incluídas foram: 1) Como descreve a sua vida académica em fase de Covid-19? 2) Se escolhesse a situação mais complicada com que teve de lidar, qual seria? Pode descrever? 3) O que tem sido mais difícil para si durante a pandemia Covid-19? 4) O que o/a tem ajudado mais a lidar com as dificuldades? 5) Imagine que daqui a alguns anos, irá contar a história da sua experiência na pandemia Covid-19, o que acha que irá contar? Os estudantes eram incentivados a responder a estas questões, expressando a sua perspetiva, com o detalhe que considerassem adequado e sem julgamento.

Procedimento

Depois da elaboração do questionário, solicitámos a autorização do Conselho Científico da instituição onde decorreu o estudo para aplicação do instrumento. Após a autorização, foi feita a recolha de endereços eletrónicos dos estudantes do ISCED-Huambo através da base de dados da instituição e de grupos de redes sociais das turmas via whatsapp e facebook, fornecidos quer por docentes quer por estudantes, associados a esses grupos. Usando o aplicativo Google Forms, foi enviado o questionário a 130 estudantes, cujo endereço estava disponível. Os estudantes foram convidados a participar, assinando um consentimento informado que esclarecia sobre os objetivos e contexto da realização do estudo, garantindo a confidencialidade e anonimato dos dados. Apenas foram solicitados dados necessários à caracterização do grupo de participantes, não sendo pedida nenhuma informação que identificasse o participante (e.g., número de aluno ou nome). A participação foi voluntária, podendo o estudante desistir e interromper a sua resposta ao questionário, caso não se sentisse confortável. Dos estudantes contactados, 58 responderam e devolveram o questionário, correspondendo a uma taxa de resposta de 56.3%. Conhecendo o contexto, julgamos que esta taxa de resposta pode estar relacionada com dificuldades de acesso à internet por parte de alguns estudantes. Tendo por base outras investigações qualitativas com base em questionários abertos (e.g., Ribeiro et al., 2021), bem como a extensão das respostas às questões, considerámos que este número seria suficiente para atingir a saturação dos dados, e por isso, avançamos para a análise com este número de respostas. Os dados recolhidos entre os meses de agosto e outubro de 2020, foram registados e organizados numa folha de excel.

Análise de dados qualitativos

As respostas ao questionário foram analisadas de acordo com os procedimentos da análise temática descritiva (Braun & Clark, 2006). De acordo com a proposta destas autoras, a análise temática é um método para identificar, analisar e relatar padrões semânticos nos dados. Assim, no presente estudo, a análise decorreu em cinco fases diferentes, de acordo com a proposta das mesmas autoras: 1) familiarização com os dados recolhidos; 2) codificação das respostas; 3) recodificação (refinamento dos códigos); 4) criação de temas provisórios; 5) seleção e ajustamento dos temas; 6) criação e definição de temas finais. Todas estas fases foram realizadas pelo primeiro autor, foram revistas e auditadas pela segunda autora, sendo os resultados, resultado da negociação consensual entre ambos.

De seguida descrevemos cada uma das fases e exemplificamos o processo de codificação que conduziu aos resultados. A familiarização com os dados consistiu na leitura, releitura e redação de apontamentos breves de todas as respostas aos questionários, para nos apropriarmos de uma forma geral do conteúdo dos dados brutos. Terminada esta fase, prosseguimos para a fase de codificação dos dados. A identificação dos códigos foi feita por questão, lendo e codificando as respostas de todos os participantes, seguindo um método de codificação indutiva e assumindo o texto da resposta como unidade de análise. Cada código consistiu numa ideia independente, presente nos dados. Optámos por códigos não mutuamente exclusivos, podendo uma unidade de análise dar origem a um ou mais códigos. Por exemplo, a unidade de análise – mal, pois não tenho estudado com muita frequência e sei que isso enfraquece as

minhas capacidades intelectuais (P3, H, entre 17 e 25 anos) – uma das respostas à primeira pergunta do questionário, foi codificada como: a) experiência negativa, b) menos estudo; c) enfraquecimento das capacidades intelectuais.

Depois de termos gerado uma primeira lista de códigos, num total de 359, passámos para o processo de auditoria. A auditoria permitiu melhorar alguns códigos que não estavam devidamente formulados, como por exemplo a resposta “o mau momento que paralisou todo mundo por um longo período de tempo (P12, M, entre 31 e 35 anos)” foi inicialmente codificada da seguinte maneira: O mau momento que paralisou o mundo inteiro por um longo período. Este código, após a auditoria, foi reformulado, dividindo-se em dois códigos: a) momento mau; b) o mundo paralisou por longo período. Com as alterações resultantes da auditoria, verificou-se um aumento de códigos para 371.

O processo de refinamento foi feito no contexto de uma reunião entre o primeiro autor e a segunda autora, onde foram discutidas as descrições dos códigos iniciais e as divergências sobre eles. Verificámos que alguns códigos não eram claros ou pareciam não representar adequadamente as unidades de análise (respostas dos estudantes). Assim, os códigos finais foram ajustados e definidos consensualmente. Por exemplo a unidade de análise “o convívio com a família em casa, P57, M, entre 17 e 25 anos” (em resposta à quarta questão), inicialmente, foi codificada da seguinte maneira: “o convívio com a família em casa”. Este código não nos pareceu ajustado por repetir exatamente o texto da resposta e por não ser potencialmente transversal à resposta de outros estudantes. Na recodificação este código foi consensualmente refinado para o seguinte código: “o apoio familiar”.

Verificada a codificação, passámos para a elaboração dos temas gerais provisórios. Nesta terceira etapa, os códigos foram reunidos e comparados entre si tendo em conta o âmbito do estudo e independentemente da questão de origem dos códigos. Com base em semelhanças identificadas entre os códigos, explicitadas nas categorias desenvolvidas de nível superior, criámos temas iniciais. Neste processo de elaboração de temas, identificámos temas de níveis distintos, sendo possível mapear temas gerais e subtemas mais específicos.

A saturação da análise de dados foi identificada através da revisão das respostas dos participantes, anotando as repetições de códigos ou códigos muito similares até não ser possível encontrar novos códigos. Os códigos repetidos ou similares ficaram agrupados mediante as suas semelhanças, contribuindo para a formação de subtemas. Por exemplo o subtema “perda académica” inclui códigos como: “menos estudo, capacidades enfraquecidas, menor ritmo de formação”. A apresentação dos dados em uma folha de excel permitiu a identificação da regularidade dos códigos nas descrições dos participantes. A saturação da análise dos nossos dados ficou verificada na fase da recodificação, quando não foi possível encontrar novos elementos que pudessem representar um determinado tema.

RESULTADOS

Os resultados que apresentamos de seguida estão organizados por temas e respetivos subtemas. Começamos por descrever os temas centrais e, posteriormente, especificamos cada tema com base nos seus subtemas. Ao longo do texto incluímos códigos dos participantes, referindo P (número do participante) H ou M (para referir o género) e o intervalo etário. No fim desta secção, apresentamos uma tabela que pretende mapear a prevalência de cada tema e subtema no grupo de participantes em geral e nos dois subgrupos, definidos em função do género.

Tema 1: Experiência académica difícil, de perda e de ameaça

Este tema engloba cinco subtemas que descrevem a perceção dos estudantes sobre a sua experiência académica durante o período em que as aulas foram suspensas como medida de contenção da propagação da Covid-19. Na sua globalidade este tema relaciona-se com experiências percebidas de dificuldade, de perda e de ameaça às vivências académicas, agregando 5 subtemas específicos. A seguir, descrevemos os diferentes subtemas e ilustramo-los com mais detalhes:

A Experiência negativa e difícil, foi descrita pelos estudantes que consideraram o período de confinamento como complicado, mau, muito difícil, horrível, péssimo, cansativo, aborrecido. Vários estudantes, homens ou mulheres, referiram esta experiência negativa e difícil, afirmando-a sem nenhuma explicação ou relacionando-a com experiência de perda académica. Por exemplo, uma aluna descreveu experiência negativa da seguinte forma: “horrível” (P6, M, entre 17 e 25 anos), enquanto uma outra estudante referiu: “É uma fase bem difícil para mim, até porque estava bem entusiasmada pra fazer o primeiro ano, (...) está muito difícil mesmo” (P21, M, entre 17 e 25 anos). No mesmo sentido outro participante referiu: “A minha vida académica nesta fase de pandemia está meio difícil isto porque todas as minhas expectativas traçadas não se vão cumprir (...)” (P27, H, entre 17 e 25 anos).

A Perda académica foi uma experiência descrita por quase metade dos estudantes, sendo que a maioria das estudantes refere este sentido de perda académica. Esta experiência refere-se à impossibilidade de avançar e cumprir expectativas académicas e sonhos pessoais, à consequente perda de

motivação para realizar tarefas académicas e percepção de perda de capacidades intelectuais. Por exemplo, uma estudante afirmou: “Adormecida, quase que completamente parada (...), não há tanta motivação” (P47, M, entre 17 e 25 anos). Uma outra descreveu a perda académica da seguinte forma: “Ver meu sonho de 2020 frustrado” (P43, M, entre 26 e 30 anos). Um outro estudante afirmou o seguinte: “Durante esta fase o meu nível de assimilação baixou consideravelmente” (P7, H, entre 17 e 25 anos).

A Alteração negativa nas rotinas de estudo foi mencionada por alguns estudantes, quer sejam homens ou mulheres, que perceberam suas rotinas de estudo interrompidas devido ao confinamento, criando uma vida mais sedentária, com ausência de algumas atividades académicas e de estudo em grupo. Por exemplo, um estudante referiu: “acordar e não fazer coisa de especial, como ir à escola, a biblioteca, mediateca, encontro com amigos e grupo de estudo” (P22, H, entre 26 e 30 anos). Outro estudante referiu: “Ficar sem fazer nada, o que me tem estado a cansar demais” (P27, H, entre 17 e 25 anos). Uma das estudantes referiu: “está tudo parado, ficámos sem aulas e muitas outras coisas” (P10, M, entre 17 e 25 anos). Um outro estudante referiu: “ter de ouvir a professora a explicar o conteúdo de informática na rede social, sem poder ter a possibilidade de colocar as dúvidas e ser respondido na hora” (P11, H, entre 26 e 30 anos).

A Ameaça à sustentabilidade da formação foi descrita por alguns estudantes com estatuto de estudante trabalhador ou cujos pais dependem do trabalho nos mercados informais. Um desses estudantes descreveu esta experiência da seguinte forma: “Com o confinamento e a redução dos dias de venda nos mercados informais (...), as fontes de rendimento baixaram consideravelmente, afetando assim a sustentabilidade da minha formação” (P50, H, entre 41 e 45 anos). Um outro exemplo de um participante respondendo a terceira questão, descreve o seguinte: “O que tem sido mais difícil é ver minha mãe de quem dependo a ficar sem fazer nada, porque não pode ir vender todos os dias. Estou com medo quando as aulas retomarem não terei como pagar as propinas, porque estudo no período pós-laboral” (P12, M, entre 17 e 25 anos).

A Experiência académica, sobretudo difícil, de perda e de ameaça, foi referida por alguns estudantes homens, que sublinharam a progressiva acomodação à situação ou a classificaram como boa ou razoável, sem nenhuma explicação. Por exemplo um dos estudantes referiu: “no princípio, foi terrível, cansativo, mas com o passar do tempo, conseguimos nos acostumar com a situação” (P52, H, entre 17 e 25 anos), um outro estudante referiu apenas “boa” (P38, H, entre 26 e 30 anos).

Tema 2: Preocupações e dificuldades específicas, para além da vida académica

O segundo tema agrega cinco subtemas relacionados com as preocupações que os estudantes manifestaram, relacionadas com o incómodo no cumprimento das medidas de proteção e que estão para além da vida académica em si, como sejam o medo de ser infetado, e o envolvimento inevitável em comportamento de risco para, por exemplo, ter acesso a bens essenciais.

O Incómodo no cumprimento das medidas de proteção foi mencionado pela maioria dos estudantes para descrever as suas dificuldades durante o cumprimento das medidas de proteção individual e coletiva, seja com o uso das máscaras seja com a obrigatoriedade de ficar em casa. Por exemplo, vários estudantes referiram “usar a máscara” (P30, M, entre 17 e 25 anos, P41, H, entre 26 e 30 anos, P57, H, entre 26 e 30 anos), em resposta à segunda questão: Se escolhesse a situação mais complicada com que teve de lidar, qual seria? Bastantes estudantes referiram o incómodo com ficar em casa. Por exemplo, um dos estudantes afirmou: “Ficar em casa, que nem sair até ao portão admitem (...), é muito chato” (P50, H, entre 41 e 45 anos). A propósito da situação considerada mais complicada, uma das estudantes referiu: “não sair de casa” (P7, M, entre 26 e 30 anos).

O Medo de ser infetado por insegurança no contato com outros foi mencionado por alguns estudantes que manifestaram receio de ser infetados em situações que exigiam a saída de casa, o contacto com outras pessoas ou que testemunhavam ou sentiam sintomas similares aos da Covid-19. A propósito do que foi percebido como mais difícil, uma das estudantes referiu: “Sair para procurar comida no meio de pessoas que não sei se estão infetadas ou não” (P18, M, entre 26 e 30 anos). Um outro estudante afirmou: “Sair de casa com preocupação de não saber com quem vais cruzar” (P24, H, entre 31 e 35 anos). A propósito da confusão com sintomas associados a Covid-19, um estudante referiu: “A situação mais complicada (...) foi pegar uma gripe normal e imaginar que estivesse infetado pela covid-19, (...)” (P13, H, entre 17 e 25 anos).

A Inevitabilidade do comportamento de risco trata-se das experiências e comportamentos referidos por alguns estudantes como sendo necessários para satisfazer as necessidades pessoais fora do local de confinamento, como, por exemplo, entrar em locais com muito público, andar de táxi, enfrentar as multidões no banco, obter bens essenciais. Estes comportamentos associados ao contacto com pessoas que não cumpriam as medidas de proteção, como o uso de máscara facial e desinfeção das mãos com álcool gel, foram percebidos com potencial de risco para a infeção. Por exemplo, uma estudante descreveu esta situação da seguinte maneira: “Ter que sair de casa, tendo cerca sanitária em toda a cidade, mas a

circunstância exigia-o para procurar comida” (P35, M, entre 31 e 35 anos). Um outro estudante descreveu o seguinte: “entrar em locais com muita gente, em táxis principalmente” (P54, H, entre 17 e 25 anos).

O Sentir-se limitado na demonstração do afeto e isolamento social refere-se à experiência de ficar em casa sem oportunidade de convívio com os familiares e / ou amigos e sem poder demonstrar e expressar afeto. Este subtema foi mais relatado por alguns estudantes com maior incidência e detalhe nas respostas das estudantes. Por exemplo, uma estudante descreveu este distanciamento social da seguinte maneira: “não poder estar constantemente com as pessoas que eu amo, ter um convívio normal, poder abraçar sem receio (...)” (P47, M, entre 17 e 25). Uma outra estudante refere: “Saber de pessoas conhecidas morrendo de covid-19, não podendo acompanhar até a última morada” (P35, M, entre 31 e 35 anos). Um dos estudantes referiu como difícil: “a restrição de me dar com amigos e o isolamento social” (P58, H, entre 17 e 25 anos).

Tema 3: Recursos para enfrentar o período de confinamento

Apesar das dificuldades experienciadas, quer no contexto académico, quer na vida em geral, os estudantes identificaram recursos úteis para lidar com essas experiências e com a ameaça e vulnerabilidade percebida. Cinco subtemas detalham os recursos identificados: suporte familiar e social, meditar / orar / fé, competências pessoais, manter a ocupação (seja com entretenimento e redes sociais, com trabalho, com atividades intelectuais) e tomada de consciência e reflexão sobre a experiência.

O Suporte familiar e social foi referido por bastantes estudantes, em especial pelas mulheres, para mencionar o que ajudou a enfrentar os efeitos do confinamento. Geralmente foi descrito com referência aos diálogos mantidos entre os membros da mesma família e telefonemas recebidos de outras pessoas, que ajudaram a manter a esperança, o contato social e um nível de ocupação saudável. Por exemplo, uma estudante descreveu esse recurso da seguinte forma: “(...) diálogo com diferentes tipos de pessoas” (P60, M, entre 17 e 25 anos). Uma outra estudante referiu o seguinte: “(...), ter as pessoas que amo do meu lado, (...)” (P6, M, entre 17 e 25 anos). Um outro estudante descreveu o seguinte: O que me tem ajudado a lidar com as dificuldades é o tempo que eu tenho tido para conversar e estar mais em contacto com a minha família” (P45, H, entre 17 e 25 anos).

Meditar / orar / fé é um subtema que se refere a estratégias pessoais para enfrentar as experiências durante o estado de confinamento físico e social. Este subtema, mencionado por bastantes estudantes, principalmente pelas mulheres, inclui referências à meditação da Bíblia, à oração, à confiança em Deus e à esperança do retorno à vida normal. A este propósito, uma estudante afirmou o seguinte: “primeiro coloco tudo em oração, a oração é o refúgio para tudo que tem acontecido, porque eu realmente creio que vamos ultrapassar tais dificuldades e as coisas poderão melhorar” (P53, M, entre 17 e 25 anos). Um outro estudante mencionou o seguinte a propósito do que o ajudava a lidar com as dificuldades: “Pensar positivo, a leitura de algumas passagens bíblicas e em tudo ser resiliente” (P41, H, entre 26 e 30 anos).

O subtema das Competências pessoais inclui relatos de alguns estudantes, principalmente homens, que se referiram pensar positivo e com otimismo sobre o confinamento, que reconheceram a sua resiliência, que manifestaram autoconfiança, esperança, foco nas soluções e em manter a calma. Por exemplo, um estudante descreveu da seguinte maneira este recurso: “pensar positivo (...) e em tudo ser resiliente” (P41, H, entre 26 e 30 anos). Outro estudante em resposta à quarta questão descreveu o seguinte: (...) “procurar estar o mais calmo possível para assim me concentrar em soluções” (P3, H, entre 17 e 25 anos).

Manter a ocupação inclui referência à utilidade de diferentes tipos de ocupações, seja em atividades de entretenimento e redes sociais (assistir a programas da televisão, descontrair-se com algumas atividades lúdicas, ouvir música, ligação a redes sociais), seja com atividades de trabalho, seja a ocupação em atividades intelectuais como a leitura (materiais académicos ou outros). Este foi um recurso que, na sua globalidade, foi referido por bastantes estudantes, embora mais homens tenham referido as atividades intelectuais e mais mulheres tenham mencionado atividades de entretenimento e redes sociais. Por exemplo, um estudante ao explicar o que o ajudou a enfrentar o confinamento, referiu o seguinte: “leitura, música, internet, TV, cursos e trocar assuntos com os próximos” (P51, H, entre 17 e 25 anos). Um outro estudante referiu: “ler livros técnicos, literatura” (P50, H, entre 26 e 30 anos) e uma das estudantes referiu: “leitura da Bíblia, entretenimento, conversas jogos caseiros e o trabalho” (P6, M, entre 17 e 25 anos).

O subtema de Tomada de consciência e reflexão sobre a experiência emergiu nos relatos de alguns estudantes que se referiram à experiência durante o confinamento como um momento de reflexão e de aprendizagem pessoal, conciliando uma perceção de dificuldade com aprendizagem, consciência de vulnerabilidade e igualdade da natureza humana, independente de estatutos sociais. Por exemplo, um estudante ao responder à quinta questão descreveu da seguinte forma: “nesta fase eu pude aprender que ficar em casa não é um castigo, mas uma forma de vermos quem somos e o que queremos da nossa vida, pois este é um momento de reflexão” (P4, H, entre 17 e 25 anos). No mesmo sentido, uma estudante referiu: “Foi uma fase difícil, porém construtiva” (P5, M, entre 17 e 25 anos). Um outro estudante, referiu: “No

período de Covid-19, percebi que ninguém se salvaria sozinho, (...) É necessário que todos cumpram com as medidas orientadas pelo Ministério da Saúde” (P36, H, entre 36 e 40 anos).

Em suma, os três temas principais representam as nossas interpretações baseadas nas descrições e reflexões que os estudantes fizeram sobre as suas experiências de vida académica durante o período de confinamento por causa da Covid-19. A Tabela 1 apresenta um mapeamento dos temas e subtemas que emergiram no grupo global de participantes e nos subgrupos considerados em função do género.

Tabela 1. Temas e subtemas que organizam a experiência dos estudantes em tempo de pandemia.

Temas	Subtemas
Tema 1: <i>Experiência académica difícil, de perda e de ameaça</i>	Experiência negativa e difícil Perda académica Alteração negativa nas rotinas Ameaça à sustentabilidade da formação Experiência académica, sobretudo difícil, de perda e de ameaça
Tema 2: <i>Preocupações e dificuldades específicas</i>	O cumprimento das medidas de proteção Medo de ser infetado Inevitabilidade de comportamentos de risco Sentir-se limitado na demonstração do afeto e isolamento social
Tema 3: <i>Recursos para enfrentar o período de confinamento</i>	Suporte familiar e social Meditar / orar / fé Competências pessoais Manter ocupação Tomada de consciência e reflexão sobre a experiência
	Entretenimento ou redes sociais Com trabalho Com atividades intelectuais

DISCUSSÃO

A pandemia Covid-19 afetou todas as esferas da vida humana, motivando os investigadores de vários países a interessarem-se e a pesquisarem sobre esta temática. Enquadrado na linha de investigação orientada para a compreensão do impacto da pandemia nas experiências dos estudantes do ES, o nosso estudo procurou contribuir para o conhecimento sobre o impacto e da natureza das experiências que a pandemia gerou na vida dos estudantes do ES. Em particular, este estudo procurou compreender as experiências e perceções dos estudantes sobre as mesmas, contextualizando-as na realidade cultural de Angola. O presente estudo permitiu identificar três temas gerais sobre o impacto e experiência da pandemia Covid-19, considerando a perspetiva dos alunos - Experiência académica difícil, de perda e de ameaça, preocupações e dificuldades específicas para além da vida académica e recursos para enfrentar o período de confinamento – cada um com subtemas mais específicos.

Relativamente ao primeiro tema sobre a natureza da experiência académica, um dos resultados que nos parece interessante é o que se refere ao facto de muitos os estudantes, homens e mulheres, terem referido a perceção de estagnação e perda da sua vida académica. Parece claro que os/as estudantes perceberam o seu projeto profissional ameaçado, quer pela perda na rentabilidade do estudo, quer pela ameaça à sustentabilidade da sua permanência no percurso académico. Com base nos relatos dos participantes do estudo, este sentido de ameaça parece ter sido mais presente nas experiências das mulheres. Estes resultados assemelham-se aos encontrados nos estudos realizados por Iorios et al. (2020) e por Sunde et al. (2022). Estes estudos, realizados em Portugal, avaliaram o impacto da Covid-19 em estudantes internacionais no ES e efeitos da pandemia Covid-19 na saúde mental dos universitários oriundos de Moçambique, respetivamente. Os resultados destes dois estudos mostraram que os estudantes receavam ter de interromper os estudos na Universidade, devido ao cancelamento de bolsas de estudo, para uns, e à perda de emprego remunerado, para outros. Em comum com os estudantes internacionais dos estudos referidos, os estudantes do nosso estudo partilharam a experiência de incerteza em relação ao futuro da sua vida académica e a ameaça à satisfação das suas expectativas académicas e sonhos pessoais.

No nosso estudo, para além da ameaça à sustentabilidade da sua formação relatada por alguns participantes, já referida acima, a perceção de perda académica esteve frequentemente associada a experiência negativa ou difícil, sugerindo que a estagnação e perda da vida académica, constitui motivo de um sofrimento psicológico para os estudantes, quer sejam homens ou mulheres. O relato de alguns

participantes sugere que estes perceberam a sustentabilidade da sua vida académica dependente de outros significativos ou de serviços informais. Muitos desses serviços informais também ficaram encerrados durante a pandemia Covid-19 e, por conseguinte, o corte dos salários ou de rendimentos económicos dos próprios ou dos encarregados de educação podem ter constituído uma ameaça real. A perda de salários ou rendimentos económicos parece ter sido percebida como uma ameaça à possibilidade de pagamento de propinas, o que pode ter contribuído para aumentar a preocupação dos estudantes sobre o futuro da sua vida académica. Neste sentido, os estudantes economicamente instáveis estavam em alto risco de sofrer múltiplas consequências negativas da pandemia Covid-19. Estes resultados são coerentes com os encontrados nos estudos de Ferrinho (2020), Rosa et al. (2021) e Iorio et al. (2020), em que os estudantes com rendimento económico instável receavam perder a estabilidade da vida laboral, com consequências nefastas na sua vida académica.

Os resultados do nosso estudo sugerem que, durante o período de confinamento por Covid-19, os estudantes angolanos viveram preocupações e dificuldades específicas, que não estando, necessariamente, diretamente ligadas à vida académica, podem ter tido impacto nesta área da sua vida. Por exemplo, as preocupações e dificuldades com o cumprimento das medidas de proteção, o medo de ser infetado e o isolamento social foram bastante referidos, sendo compreensível que, quer nos estudantes mais jovens quer nos mais velhos, estas dificuldades tenham interferido nas rotinas académicas, mesmo quando realizadas à distância. Embora o medo de ser infetado possa ser uma experiência comum a toda a população, pois todos estão sob o mesmo risco, no caso dos estudantes, este medo pode ter repercussões acrescidas na vida académica. Por exemplo, as medidas de proteção e prevenção da infeção criaram restrições na partilha de meios de estudo e objetos, como o caso de livros e computadores. No entanto, no nosso estudo, para além das preocupações específicas ligadas às rotinas académicas, principalmente as estudantes mulheres incluíram nas suas preocupações as limitações na demonstração do afeto e o seu impacto negativo no seu bem-estar. Este resultado é congruente com os resultados da pesquisa de Barros et al. (2021), sobre os impactos da pandemia Covid-19 na saúde mental dos estudantes. De acordo com estes autores as preocupações relacionadas com a vida pessoal, familiar e social, a proteção da saúde física e a manifestação dos afetos parecem ser as mais relevantes para os estudantes.

Apesar das implicações negativas do confinamento em termos académicos e em termos pessoais, é interessante notar que os estudantes do nosso estudo referiam recursos para enfrentar o próprio período de confinamento. A ocupação com leituras e entretenimento, por exemplo, parece ter funcionado como um recurso importante para enfrentar as experiências negativas e difíceis motivadas pela pandemia e confinamento. Por outro lado, atividades de natureza espiritual e religiosa (meditação, oração e fé) foram bastante valorizadas pelos estudantes, sobretudo pelas mulheres. Considerando a cultura angolana, este recurso espiritual é compreensível. Algumas das unidades de análise incluíam quer a ideia da leitura, quer da fé e da oração, fazendo referência à leitura da Bíblia. Com base no nosso conhecimento experiencial da cultura angolana, em particular na zona do Huambo, podemos afirmar que é frequente os angolanos recorrerem a passagens da Bíblia para se confortarem e assegurarem esperança em relação ao futuro. Segundo estudos de Martins et al. (2024), a prática de atividades religiosas pode estar relacionada com fatores protetores para problemas emocionais resultantes da pandemia Covid-19, para os estudantes do ES de forma particular, e de forma geral para a população geral.

Esta relação entre espiritualidade e resiliência tem sido relatada em outros estudos. Os estudos feitos por Martins et al. (2024) e Morato et al. (2023), com estudantes do ES do Brasil, sobre o impacto da pandemia Covid-19 na saúde mental dos estudantes, mostraram uma correlação positiva entre a resiliência e a espiritualidade. Os mesmos autores sugeriram que a religião pode ser uma ferramenta valiosa na promoção da saúde mental em tempos desafiadores.

Além da relevância das leituras de natureza espiritual, os resultados do nosso estudo sugerem a importância da leitura como uma atividade que mantém a motivação intelectual, sendo este recurso principalmente enfatizado pelos estudantes homens. Outros estudos têm mostrado a importância da atividade de leitura durante a pandemia Covid-19 para obtenção de conhecimentos (e.g., Damasceno et al., 2022). De acordo com Oliveira (2021) a atividade de leitura auxilia na gestão/regulação das emoções e dos sentimentos dos sujeitos quando estes estão em fase negativa e com atitudes pessimistas, permitindo vencer as inquietações.

Apesar do grande mal que a pandemia pode ter causado, os estudantes participantes no nosso estudo perceberam que é possível reunir recursos para enfrentar a incerteza, a apatia e a angústia face ao futuro. Os recursos encontrados, em nosso entender, podem funcionar como fatores protetores e prevenir dificuldades e perturbações emocionais, como o caso da ansiedade e depressão, conforme estudos de Irawan et al. (2020).

Os resultados do presente estudo sugerem que o impacto da pandemia Covid-19 em estudantes angolanos que participaram e partilharam a sua experiência é semelhante ao relatado em outros estudos

realizados no âmbito da mesma temática. Durante a pandemia Covid-19, os estudantes viveram experiências difíceis e prejudiciais aos seus projetos académicos. No entanto, é importante notar, também, a sua capacidade para mobilizar recursos e ativar processos promotores de resiliência. Neste contexto, salientamos que o nosso estudo permitiu identificar alguns destes recursos compreensíveis à luz das dimensões contextuais que caracterizam o povo angolano. Por exemplo, a ênfase no recurso de natureza espiritual e religiosa é coerente com o conhecimento cultural referido anteriormente. De acordo com o censo populacional de 2014, cerca de 87,7% da população angolana professa a religião. É frequente observar jovens estudantes universitários a praticarem atividades religiosas, pertencerem a grupos de jovens religiosos, o que pode ajudar a compreender os resultados do presente estudo, que parecem mais reveladores de comportamentos e estratégias de coping mais adaptativo do que os encontrados em outros países africanos. Por exemplo, o estudo realizado na África do Sul mostrou que os estudantes universitários recorreram a estratégias menos adaptativas para enfrentar a pandemia Covid-19, como o consumo exagerado de bebidas alcoólicas (Coetzee et al., 2024). Compreendemos que à luz da cultura angolana, o consumo de bebidas alcoólicas em exagero contrasta com os princípios religiosos muito enraizados.

Em suma, a compreensão contextualizada culturalmente das experiências e dos recursos em fase de pandemia, dos estudantes angolanos, é particularmente importante para o planeamento de intervenções suportadas pela consciência e competência cultural dos agentes responsáveis pela educação, bem-estar e saúde mental dos estudantes angolanos.

Limitações do presente estudo

Os resultados do presente trabalho podem apresentar limitações tendo em conta o instrumento utilizado para a recolha de dados (questionário em vez da entrevista). A entrevista seria um instrumento mais adequado para a obtenção de informações mais aprofundadas e detalhadas, favorecendo a compreensão de alguns significados e relações entre códigos, que o questionário não permitiu obter. O acesso à internet constituiu outra limitação, considerando que só os alunos com acesso a internet puderam responder ao questionário enviado. Logo, este estudo não relata a perspectiva de estudantes menos favorecidos do ponto de vista socioeconómico, que, por seu lado, podem sofrer um impacto ainda mais negativo ou diferente da pandemia.

Conclusões e implicações do estudo

O presente estudo permitiu caracterizar as experiências de estudantes angolanos durante a pandemia Covid-19 e consequente confinamento físico e social. No entanto, não se sabe a forma como esta experiência irá repercutir-se na saúde mental dos estudantes e no seu desempenho académico a curto ou a longo prazo. Tendo em conta a associação entre a saúde mental prejudicada e experiências similares relatadas em outros estudos, consideramos que a instituição onde foi feita a investigação, deve implementar programas de acompanhamento clínico e pedagógico que possam monitorizar o comportamento dos estudantes e que possam promover o bem-estar e a resiliências dos mesmos, as suas competências sociais e emocionais bem como estratégias de remediação para episódios potencialmente traumáticos decorrentes da pandemia Covid-19, conforme sugere Maia e Dias (2020). Embora sejam claros os efeitos negativos da pandemia, quer o nosso estudo quer outros estudos relatados na literatura (e.g., Barros et al., 2021; Oliveira et al., 2022;) sinalizam algumas experiências positivas associadas a fatores protetores ou recursos dos estudantes, que importa considerar, numa perspectiva mais otimista e tomar como referência para a elaboração de programas focados no bem-estar dos estudantes e na expansão dos recursos considerados por eles como significativos. Nesse sentido, será desejável a realização de estudos de aprofundamento e extensão do presente estudo, seja com outras populações, de outras regiões de Angola, seja com outras metodologias.

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CRedit DECLARAÇÃO DE CONTRIBUIÇÃO DOS AUTORES

Alcino Miguel: conceptualização, recolha, armazenamento, organização e análise formal dos dados, redação e revisão da escrita do artigo. **Eugénia Ribeiro:** conceptualização, planificação do estudo, revisão da análise de dados e revisão da escrita do artigo.

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Factor Structure, Reliability and Validity of the European Portuguese Version of the Revised Childhood Anxiety Sensitivity index (CASI-R) in a Clinical Sample of School-Aged Children

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Abstract: The present study explored the factor structure, reliability and convergent validity of the Portuguese version of the Childhood Anxiety Sensitivity Index – Revised (PT-CASI-R) in a clinical sample of school-aged children. A clinical sample of 153 children with emotional disorder symptomatology (i.e., anxiety or depressive disorder; 6-13 years) completed the CASI-R and the Revised Child Anxiety and Depression Scale (RCADS). A confirmatory factor analysis was performed and the psychometric properties of the CASI-R were assessed. The PT-CASI-R revealed good internal consistency, with a four-factor hierarchical structure. Moderate and strong correlations were found between the CASI-R and RCADS subscales, specifically the “panic disorder” RCADS subscale. Our findings suggest that the PT-CASI-R is a psychometrically valid measure for assessing anxiety sensitivity in Portuguese children with clinical emotional symptoms, between 6 and 13 years old.

Keywords: Anxiety sensitivity; Children; Clinical sample; Psychometric properties.

Anxiety and depressive disorders are among the most common mental health conditions in children and adolescents (Melton et al., 2016), and their prevalence has recently increased both globally (Lebrun-Harris et al., 2022) and in Portugal (Augusto, 2014). The rising prevalence of mental disorders highlights the importance of conducting research on children's mental health, particularly on the variables that contribute to the development and persistence of such disorders.

Anxiety Sensitivity and Children's Mental Health

Anxiety sensitivity is one important etiological and maintenance factor of children's anxiety disorders. It can be defined as a fear of anxiety-related bodily sensations due to their perceived potential harmful consequences at physical, cognitive and social levels (e.g., physical illness, loss of control, and social embarrassment, respectively; Reiss & McNally 1985; Taylor et al., 2007). Several studies with children and adolescents have found an association between anxiety sensitivity and the development and maintenance of anxiety-related disorders, such as social phobia (Alkozei, et al., 2014), obsessive-compulsive disorder (Krebs et al., 2020), posttraumatic stress disorder (Chiu et al., 2024), panic disorder, and agoraphobia (Muris et al., 2001; Noël & Francis, 2011). Children with anxiety disorders were also shown to have higher levels of anxiety sensitivity than children without an anxiety disorder (Muris et al., 2001). For instance, a study by Weems et al. (2007) found significant relationships between children's anxiety disorder symptoms and anxiety sensitivity, negative cognitive errors, and anxiety control beliefs. Higher scores of anxiety sensitivity were also associated with mood disorders, particularly depression.

Several studies have suggested gender differences in anxiety sensitivity (e.g., Deacon et al., 2002; Muris, 2002; Walsh et al., 2004), with girls reporting significantly higher levels of anxiety sensitivity than boys, particularly fear of publicly observable anxiety reactions. It has been hypothesized that girls are generally more encouraged than boys to express and experience their emotions, which may explain these differences (Golombok & Fivush, 1994). Given previous research demonstrating age differences in children's understanding of anxiety sensitivity construct, some authors have suggested that younger children may not have acquired the cognitive skills required to understand the attributions that underlie the expression of the anxiety sensitivity (Nelles & Barlow, 1988). Mattis and Ollendick (1997), on the other hand, claimed that younger children generate more positive attributions in response to panic and anxiety symptomatology than older children. However, in addition to these findings, Francis et al. (2019) observed

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no significant differences between children aged between 8 and 11 years and those aged between 12 and 14 years on self-reported anxiety sensitivity.

Assessing Anxiety Sensitivity: The Childhood Anxiety Sensitivity Index

The main self-report instrument used to assess anxiety sensitivity in children and adolescents is the Childhood Anxiety Sensitivity Index (CASI; Silverman et al., 1991). This scale is derived from the Anxiety Sensitivity Index (ASI; Reiss et al., 1986), which was developed for adults. The CASI comprises 18 items and has proven to be a valid and reliable instrument for measuring anxiety sensitivity in both clinical (e.g., attention deficit hyperactivity disorder, enuresis, dysthymic disorder, overanxious disorder, conduct disorder, oppositional disorder, and adjustment disorder) and nonclinical samples of children and adolescents (Muris, 2002; Silverman et al., 1991; Silverman et al., 1999).

The factor structure of the CASI has been extensively investigated. Although there is a general agreement on the existence of a hierarchical structure with three or four lower-order factors loading on one higher-order factor (anxiety sensitivity; e.g., Muris et al., 2001; Silverman et al., 1999; Silverman et al., 2003), the number and nature of these lower-order factors remain unclear. Difficulty in reaching consensus on the number of CASI factors is due to a variety of factors, including the origin of the sample, methods of analysis, and issues with scale translation (Stassart & Etienne, 2014). However, it is critical to understand the components that comprise this construct because they appear to correspond to many of the mechanisms that underlie the emergence of various types of anxiety or fears (Cox, 1996). Some authors have argued that anxiety sensitivity can be conceptualized as a hierarchical construct with three lower-order factors: (1) fear of physical symptoms, (2) fear of mental incapacitation, and (3) fear of social evaluation (Muris et al., 2001; Silverman et al., 1999). Nevertheless, the studies conducted by Muris et al. (2001) and Silverman et al. (1999), reported evidence of a four-factor solution, with a distinction between the factors “fear of losing control of anxiety symptoms” and “fear of social evaluation”.

One of the major challenges in defining the main dimensions of anxiety sensitivity derived from the fact that the original CASI had few items (Muris, 2002; Silverman et al., 1999). Therefore, an expanded measure of anxiety sensitivity, with 31 items, was developed to address this issue: the Childhood Anxiety Sensitivity Index – Revised (CASI-R; Muris, 2002). In the original validation study of the CASI-R (Muris, 2002), conducted in a non-clinical sample of children aged between 12 and 18 years old, two hierarchical models with three and four lower-order factors loading on one higher-order factor were tested. The hierarchical model with four factors (fear of cardiovascular symptoms, fear of publicly observable anxiety reactions, fear of cognitive dyscontrol, and fear of respiratory symptoms) loading on one higher-order factor (anxiety sensitivity) provided a significantly better fit to the data. All subscales presented good internal consistency, with Cronbach’s alpha values ranging between .81 and .88. The total score had a Cronbach’s alpha of .93. In terms of convergent and discriminant validity, this study found a strong relationship between CASI-R and anxiety sensitivity as measured by the original index (CASI; Silverman et al., 1991), as well as a positive correlation between CASI-R and trait anxiety, anxiety disorder symptoms, and depression.

Although the CASI-R was initially developed in Dutch (Muris, 2002), it has been translated into different languages, including French (Stassart et al., 2013) and English (Francis et al., 2019). French and American validation studies, conducted in non-clinical samples of children aged between 12 and 13 years old and between 8 and 14 years old, respectively, showed that the CASI-R had satisfactory reliability and validity. Both studies examined the convergent and discriminant validity of the CASI-R with other measures of anxiety and depression. In both cases, positive correlations were found between anxiety sensitivity as measured by the CASI-R and anxiety and depression symptomatology. With regard to factor structure in each of these studies, Stassart et al. (2013) tested five models with different factor structures (a one-factor model; a model with four correlated factors; a model with four lower-order factors and one higher-order factor; a four-factor model with Item 15 moved from “fear of cardiovascular symptoms” to “fear of publicly observable anxiety reactions”; and a model with four lower-order factors and one higher-order factor, with Item 15 moved from “fear of cardiovascular symptoms” to “fear of publicly observable anxiety reactions”).

The results indicated that the model with four lower-order factors and one higher-order factor was the structure with the best fit to the data, presenting adequate internal consistency, with Cronbach’s alphas of .87 for the total score and between .62 and .75 for the subscale scores. The validation study of the American version of CASI-R (Francis et al., 2019) only tested a model with four correlated factors, which had a good fit to the data. Cronbach’s alpha coefficients ranged between .67 (cognitive dyscontrol subscale) and .89 (total score). To date, a factor structure of the CASI-R including four factors has provided the best fit to the data in all studies analyzing its psychometric properties.

The present study

Considering the high prevalence of anxiety disorders during childhood in Portugal (Augusto, 2014), it is crucial to have valid instruments for measuring anxiety sensitivity in clinical and research contexts. In addition, the psychometric properties of the CASI-R have only been studied in nonclinical samples of children and adolescents. Studies exploring the psychometric properties of this scale, including its factor structure, in samples of children and adolescents with anxiety or other related disorders are critical to support the use of the CASI-R in assessing anxiety sensitivity among clinical populations.

Therefore, the present study aimed to explore the psychometric properties of the Portuguese version of the CASI-R (the PT-CASI-R) in a clinical sample of Portuguese children between 6 and 13 years. Similarly to previous CASI-R validation studies and taking into account the strong correlation between anxiety sensitivity and mood disorders, particularly depression, we chose to include in our sample not only children with anxiety symptoms but also children with depressive symptoms.

One of the main goals of this study was to analyze the PT-CASI-R factor structure. Four competing models were tested: a hierarchical factor structure with four (Model 1) or three (Model 2) lower-order factors, as tested in the original validation study (Muris, 2002); a factor structure with four correlated factors (Model 3), as tested in French and American validation studies (Francis et al., 2019; Stassart et al., 2013); and a factor structure with three correlated factors (Model 4). According with previous validation studies of this measure, we expected to demonstrate that the four-factor model had an adequate fit the data in our sample adequately.

This study also sought to analyze the PT-CASI-R reliability and the invariance of this measure across gender and age groups. Finally, we also intended to analyze the construct validity of the PT-CASI-R, by exploring its association with scores on the Revised Child Anxiety and Depression Scale (RCADS). According to previous studies (Muris et al., 2001; Weems et al., 1997) we expected the CASI-R to be positively associated with the RCADS anxiety and depression subscales.

METHOD

Participants

The present study was developed within a broader research project aiming to test the efficacy of the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Children (UP-C; Ehrenreich-May et al., 2018) in the Portuguese population. The sample of the present study comprised 153 children (58.8% girls) with a mean age of 9.44 years ($SD = 1.81$). The majority of children presented an anxiety disorder (82.4%), with only 7.8% of children presenting depressive symptomatology and 9.8% of children presenting an anxiety-related disorder as their main difficulty. The majority of children (61.4%) presented at least one comorbid diagnosis. Of these, the majority presented another emotional disorder as comorbid diagnosis (52.3%). The complete sample characterization is presented in Table 1.

Table 1. Children's Sociodemographic and Clinical Characteristics

	<i>N</i> = 153
Sociodemographic characteristics	
Age (years), <i>M</i> (SD); range	9.44 (1.81); 6-13
Children's age category <i>n</i> (%)	
6-9 years	74 (48.4%)
10-13 years	79 (51.6%)
Gender, <i>n</i> (%)	
Feminine	90 (58.8%)
Masculine	63 (41.2%)
Education level, <i>n</i> (%)	
Kindergarten	1 (0.7%)
Primary school	77 (50.3%)
Middle school	75 (49.1%)
Household monthly income <i>n</i> (%)	
Less than 800€	16 (10.5%)
800€-2000€	89 (58.2%)
2000€-3500€	30 (19.6%)
More than 3500€	8 (5.2%)
Residence <i>n</i> (%)	
Rural	59 (38.6%)
Urban	94 (91.4%)
Clinical characteristics	
Principal diagnosis, <i>n</i> (%)	
Anxiety disorder	126 (82.4%)
Anxiety-related disorder	15 (9.8%)
Depression	12 (7.8%)
Specific principal diagnosis <i>n</i> (%)	
Social phobia/performance anxiety	42 (27.5%)
Generalized anxiety disorder	29 (19%)
Specific phobia	27 (17.6%)
Separation anxiety disorder	16 (10.5%)
Obsessive-compulsive disorder	9 (5.9%)
Illness anxiety disorder	4 (2.6%)
Anxiety disorder not otherwise specified	6 (3.9%)
Agoraphobia	1 (0.7%)
Panic disorder	4 (2.6%)
Depression	12 (7.8%)
Posttraumatic stress disorder	2 (1.3%)
Selective Mutism	1 (0.7%)
Comorbid diagnosis, <i>n</i> (%)	
Yes	94 (61.4%)
No	59 (38.6%)
Comorbid emotional diagnosis, <i>n</i> (%)	
Yes	80 (52.3%)
No	73 (47.7%)
Current medication, <i>n</i> (%)	
Yes	17 (11.1%)
No	136 (88.9%)

Procedure

Translation Process

The Portuguese version of the CASI-R was developed through a translation and back-translation procedure with the permission of the author. Two Portuguese researchers fluent in English independently translated the items of the CASI-R. A preliminary Portuguese version was obtained after comparing and discussing the similarities and differences between these two versions. The preliminary Portuguese version of the CASI-R was then translated back into English by an independent researcher who was fluent in English and who was not familiar with the questionnaire to ensure grammatical appropriateness and conceptual consistency with the original version. Discrepancies and translation difficulties between the original and translated versions were analyzed, discussed and resolved by agreement between the researchers.

Data Collection

The sample was collected between March 2021 and May 2022. Participants were referred by mental health professionals of a public hospital in central Portugal, by school psychologists from six public schools in central Portugal and by parents' self-registration on the project website indicating their willingness to participate in the study. Approval from the Ethics Committee of the BLIND FOR REVIEW and from the Board of Directors of the public schools was obtained.

Furthermore, 331 parents expressed an interest in participating in the study. All families were contacted by one clinical psychologist from the research team, who provided more information about the project and the inclusion and exclusion criteria. The inclusion criteria were as follows: aged between 6 and 13 years and a primary diagnosis of an emotional disorder (i.e., an anxiety disorder, an anxiety-related disorder, or a depressive disorder). The exclusion criteria were as follows: a diagnosis of schizophrenia or bipolar disorder, a diagnosis of cognitive disability and/or pervasive developmental disorder, severe current suicidal ideation, changes in psychopharmacological intervention over the previous month, other psychological treatment during the UP-C, inability of at least one caregiver to attend the assessment and treatment sessions or inability to speak and understand Portuguese.

After that 212 participants were interested in participating and scheduled an initial eligibility interview. In this eligibility interview, two clinical psychologists assessed the inclusion and exclusion criteria through a structured clinical interview aimed at assessing the presence of several mental disorders (e.g., anxiety and related disorders, depressive disorders), over the past 6 months, according to the Diagnostic and Statistical Manual of Mental Disorders - 5 (DSM-5) and the International Statistical Classification of Diseases and Related Health Problems - 10 (ICD-10). This interview took between 30 and 90 minutes to be administered. Children who met the eligibility criteria completed a battery of self-report measures, in which the Portuguese version of CASI-R was included. Of the 212 participants, 153 met inclusion criteria for the study and completed a battery of self-response questionnaires at pretreatment, which were used in this present study.

Measures

Childhood Anxiety Sensitivity Index - Revised (CASI-R; Muris, 2002)

The CASI-R is a 31-item index used to assess anxiety sensitivity in children. Items are rated on a 3-point Likert scale (0 = not true to 2 = very true) and comprise four subscales: (1) fear of cardiovascular symptoms (10 items; e.g., "When my head is pounding, I worry that I could have a stroke"), (2) Fear of Publicly Observable Anxiety Reactions (8 items; e.g., "I think it would be horrible to faint in public"); (3) Fear of Cognitive Dyscontrol (6 items; e.g., "It scares me when I cannot keep my mind on the task"); and (4) Fear of Respiratory Symptoms (7 items; e.g., "When my breathing is irregular, I fear that something bad will happen"). The total score of anxiety sensitivity can be calculated by summing the ratings for all items. The CASI-R total score ranges from 0 to 62, with higher scores indicating higher levels of anxiety sensitivity.

The Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2000; Pereira & Pedro, 2019)

The RCADS was used to assess children's anxiety and depression symptoms. The RCADS has 47 items that are rated on a 4-point Likert scale (0 = never to 3 = always). It has one subscale assessing depression (10 items; e.g., "I feel sad or empty") and five subscales assessing anxiety disorders (37 items), including separation anxiety disorder (e.g., "I worry about being away from my parents"), generalized anxiety disorder (e.g., "I worry about what is going to happen"), panic disorder (e.g., "I suddenly feel as if I can't breathe, without a good reason"), social phobia (e.g., "I worry that I might look foolish"), and obsessive-compulsive disorder (e.g., "I get bothered by bad or silly thoughts or pictures in my mind"). It also provides a total anxiety score (sum of the five anxiety subscales) and a total internalizing score (sum of all subscales). Higher scores on the anxiety and depression subscales indicate more severe symptoms. In the current study, Cronbach's alpha coefficients were .94 for the total scale, .85 for the depression scale, .93 for the total

anxiety scale, .72 for the separation anxiety disorder subscale, .85 for the generalized anxiety disorder subscale, .88 for the panic disorder subscale, .87 for the social phobia subscale and .75 for the obsessive-compulsive disorder subscale.

Data analysis

The Statistical Package for the Social Sciences (SPSS, version 27.0; IBM SPSS, Chicago, IL) was used to determine descriptive statistics and perform t tests and correlation analyses. Preliminary analyses were performed to assess whether the data followed a normal distribution. In accordance with Kline's (2015) recommendations, each item's skewness and kurtosis were examined. If the skewness and kurtosis values were greater than 3 and 10, respectively, the data distribution was deemed nonnormal.

For confirmatory factor analysis, the software AMOS (IBM SPSS AMOS Version 24.0; IBM Corporation, Meadville, PA, USA) was employed. The maximum likelihood estimation method (Brown, 2015; Kline, 2015) was applied to the covariance matrices. Model fit adequacy was determined using the comparative fit index (CFI; Bentler, 1990), the root mean square error of approximation (RMSEA; Steiger & Lind, 1980), and the square root mean residual (SRMR; Hu & Bentler, 1999). Cutoff values of > 0.90 (CFI), < 0.08 (RMSEA) and < 0.06 (SRMR) were used as reference threshold values for model acceptability. According to Hu and Bentler (1999), the model was considered to have a good fit when CFI was ≥ 0.95 , the RMSEA was ≤ 0.06 and the SRMR was ≤ 0.08 . According to the same authors, the SRMR should be supplemented by another index (e.g., the CFI or RMSEA) to determine model fit. The Akaike Information Criterion (AIC; Akaike 1987) was used to compare models. The model with the lowest AIC value can be considered the best model (Kline, 2015). Item errors that belonged to the same factor were allowed to correlate (Byrne, 2010). Four models were tested: a model with four lower-order factors loading on one higher-order factor (Model 1), a model with three lower-order factors loading on one higher-order factor (Model 2), a model with four correlated factors (Model 3), and a model with three correlated factors (Model 4).

The internal consistency of the PT-CASI-R subscales and total scale were determined using Cronbach's alpha and omega coefficients. Coefficients of .70 or greater were regarded as acceptable (Kline, 2015). Pearson correlation analyses were performed to examine the associations among the PT-CASI-R subscales, total score, and RCADS scores. Correlation coefficients of approximately .10 were considered small or negligible, those of approximately .30 were considered moderate, and those above .50 were considered large (Cohen, 1988).

We tested measurement invariance across gender and age groups by assessing configural invariance, allowing all parameters to be freely estimated for each group. When configural variance is assumed, we proceed to test two additional models: (2) the second model, assessing metric invariance, nested within the configural model and introducing the constraint of equal factor loadings across groups, and (3) the third model, testing scalar invariance, nested within the metric invariance model and introducing the additional constraint of equal item intercepts across groups. A difference in CFI, RMSEA and SRMR values greater than 0.010 indicated a lack of measurement invariance (Cheung & Rensvold, 2002).

The age groups were determined based on previous research showing that there are important developmental differences in the most common concerns and symptoms of anxiety in middle childhood (Weems & Costa, 2005). Previous research (e.g., Weems & Costa, 2005; Westenberg et al., 2001) indicates that between the ages of 6 and 9, the main concerns arise from the development of a sense of self as separate from parents, with symptoms of separation anxiety being frequent. Children between the ages of 10 and 13 are known to develop an understanding of mortality and global issues (Westenberg et al., 2001), which may contribute to children in this age group experience fears related to danger and death, typical of generalized anxiety disorder (Weems & Costa, 2005). Effect sizes (Cohen's d) were calculated.

RESULTS

Factor Structure of the PT-CASI-R

The results of the confirmatory factor analyses indicated that all fit indices for the four models tested were satisfactory. However, Model 3 (the model with four correlated factors) was the model that presented the best fit to the data, $\chi^2(421) = 642.22$, $p < .001$; SRMR = .07; RMSEA = .06; CFI = .90; AIC = 792.22, with a combination of the lowest RMSEA and AIC values and the highest CFI value (see Table 2). Therefore, the remaining psychometric characteristics examined in this study were analyzed in relation to Model 3. As presented in Figure 1, the completely standardized factor loadings of the PT-CASI-R items were all significant ($p < .05$) and equal to or greater than .31 (see also Table 3).

In the final model, Factor 1 (Fear of cognitive dyscontrol) accounted for 18% of the explained variance, Factor 2 (Fear of publicly observable anxiety reactions) explained 15%, Factor 3 (Fear of respiratory symptoms) accounted for 27%, and Factor 4 (Fear of cardiovascular symptoms) explained 15%.

Reliability Analysis

The normality (univariate and multivariate) was assessed by the values of skewness and kurtosis. Skewness values ranged from -0.41 to 1.82 and kurtosis values ranged from -1.55 to 2.29, which indicated that there was no severe violation of normal distribution ($Sk < 3$; $Ku < 10$; Kline (2015)).

As presented in Table 4, omega coefficient values ranged from .76 (fear of publicly observable anxiety reactions) to .90 (fear of cardiovascular symptoms). Similar values were found for Cronbach's alpha values, which ranged from .77 (fear of publicly observable anxiety reactions) to .90 (fear of cardiovascular symptoms). The corrected item-total correlations ranged from .30 (Item 28) to .74 (Items 8 and 13). Cronbach's alpha values with items deleted one by one showed that the majority of the items significantly contributed to the internal consistency of the scale.

Measurement Invariance for Gender and Age

Table 5 presents the outcomes of the measurement invariance tests for both gender and age groups. Despite good RMSEA (≤ 0.06) values, both in gender and age group the configural model analysis showed poor fit across groups with low CFI values (0.810-0.830) and high SRMR values (0.089-0.099). In addition, the existence of differences above 0.010 in the CFI, RMSEA and SRMR values, between the original model (model 3) and the configural model, in both age and gender groups, did not allow configural invariance to be established. Therefore, further testing for metric and scalar invariance was not pursued.

The factor loadings for the configural invariance model were examined separately for each group. Overall, most items demonstrated loadings above the practical significance threshold of 0.31, indicating that they were meaningful indicators of the latent constructs. However, a few items exhibited loadings below 0.31, suggesting weaker relationships with their respective factors. Specifically regarding gender groups, for the male group, Item 2 and Item 10 showed a loading of 0.27 and 0.30, respectively, which falls below the commonly accepted threshold of practical significance. Similarly, Item 6, Item 10 and Item 28 in female group had a factor loading of 0.25, 0.30 and 0.29 respectively, suggesting that this items may not be a strong indicator of the underlying construct for this group.

Concerning age, for the 10-13 years old group, Item 6 demonstrated a loading of 0.29, which fall below the threshold generally considered indicative of practical significance

These low loadings suggest that certain items may not function equivalently across groups, potentially affecting the configural invariance of the model.

That indicate that the basic factor structure was not consistent across gender or age groups, not allowing inferences to be drawn as to the presence of gender and age differences.

Convergent validity

Pearson correlation analyses were conducted to examine the relationships of the PT-CASI-R with the RCADS total and subscale scores (controlling for gender). As presented in Table 6, moderate to high correlations were found, ranging from .26 to .58. All correlations were positive and significant ($p < .001$).

Table 2. Goodness-of-fit indices for the four models tested.

Model	χ^2	df	RMSEA	CFI	SRMR	AIC
Model 1: Hierarchical structure, four lower-order factors and one higher-order factor	666.82*	427	.07	.90	.07	804.82
Model 2: Hierarchical structure, three lower-order factors and one higher-order factor	668.59*	424	.06	.89	.07	812.59
Model 3: Four correlated factors	642.22*	421	.06	.90	.07	792.22
Model 4: Three correlated factors	656.39*	422	.07	.90	.07	804.39

Note 1. Model 1: Lower-order factors include (1) Fear of cognitive dyscontrol; (2) Fear of publicly observable anxiety reactions; (3) Fear of respiratory symptoms; and (4) Fear of cardiovascular symptoms; Higher-order factor: Anxiety sensitivity. Model 2: Lower-order factors include (1) Fear of physical symptoms; (2) Fear of mental incapacitation; and (3) Fear of social evaluation; Higher-order factor: Anxiety Sensitivity; Model 3: Correlated factors include (1) Fear of cognitive dyscontrol; (2) Fear of publicly observable anxiety reactions; (3) Fear of respiratory symptoms; (4) Fear of cardiovascular symptoms; Model 4: Correlated factors include (1) Fear of physical symptoms; (2) Fear of mental incapacitation; and (3) fear of social evaluation.

Note 2. * $p < .001$

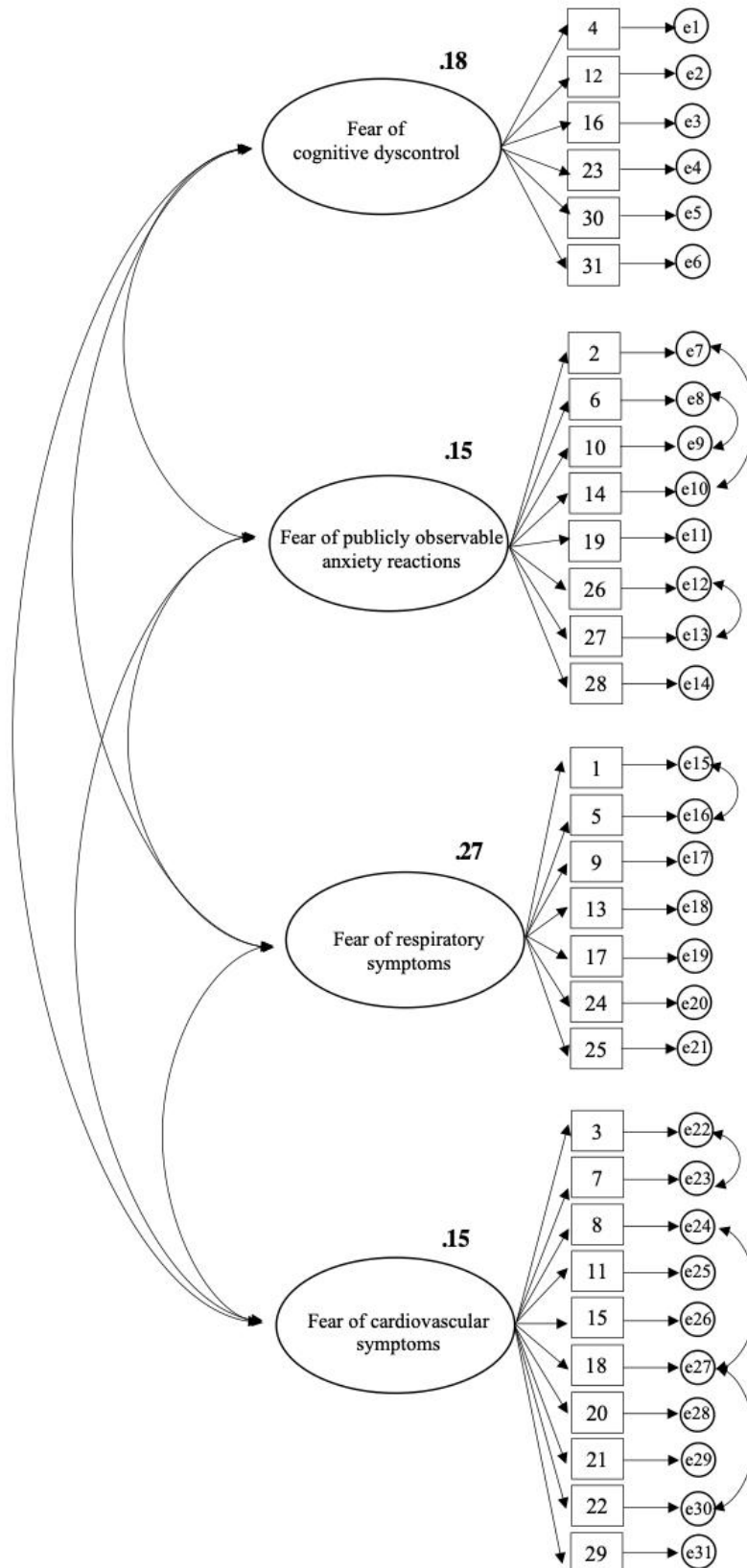


Figure 1. *Structural Model of the PT-CASI-R*

Table 3. Completely standardized factor loadings of PT-CASI-R Items.

Items	Factor 1	Factor 2	Factor 3	Factor 4
<i>Factor 1: Fear of cognitive dyscontrol</i>				
12. When thoughts speed up, worry might go crazy	.81			
16. When trouble thinking clearly, worry something wrong with me	.73			
23. When cannot keep mind on schoolwork, worry might go crazy	.70			
4. When feel strange, worry might go crazy	.69			
30. Scares me when cannot keep mind on task	.57			
31. When mind goes blank, worry something terribly wrong with me	.54			
<i>Factor 2: Fear of publicly observable anxiety reactions</i>				
19. When tremble in the presence of others, fear what people think of me		.77		
14. Worry other people notice my anxiety		.74		
26. When sweat in the presence of others, people think negatively of me		.66		
27. Scares me when blush in front of people		.54		
2. Important not to appear nervous		.50		
28. Scares me when feel like throwing up		.34		
6. Believe would be awful to vomit in public		.33		
10. Think would be horrible to faint in public		.31		
<i>Factor 3: Fear of respiratory symptoms</i>				
13. When chest feels tight, scared cannot breathe properly			.80	
24. When breathing irregular, fear something bad will happen			.78	
9. Scares me when short of breath			.74	
5. Scares me when have feeling of choking			.70	
17. When throat feels tight, scared could choke to death			.70	
1. When feel like not getting enough air, scared might suffocate			.68	
25. When trouble swallowing, worry could choke			.52	
<i>Factor 4: Fear of cardiovascular symptoms</i>				
8. When heart beats fast, worry something wrong				.79
15. When pain in chest, worry going to have heart attack				.75
22. When heart skips a beat, worry something seriously wrong				.75
18. Scares me when heart beats fast				.71
20. When dizzy, worry something wrong with brain				.71
11. When face feels numb, worry might be stroke				.69
21. When stomach upset, worry might be seriously ill				.68
7. When head pounding, worry could have a stroke				.66
3. When strong pain in stomach, worry could be cancer				.55
29. Scares me when feel tingling or prickling sensations in hands				.46

Notes. $N = 153$. All factor loadings are significant at $p < .05$.

Table 4. Reliability and item analyses.

Items	<i>M</i> (<i>SD</i>)	Range	Skewness	Kurtosis	ω	Cronbach' s α	Corrected item-total correlation	Cronbach' s α when item deleted
<i>Factor 1: Fear of cognitive dyscontrol</i>	3.22 (3.20)	0.00–12.00	1.21	0.91	.83	.83		
12. When my thoughts speed up, I worry that I might go crazy	.48 (.72)	0.00–2.00	1.14	-0.12			.71	.78
16. When I have trouble thinking clearly, I worry that something is wrong with me	.54 (.73)	0.00–2.00	0.96	-0.50			.64	.79
23. When I cannot keep my mind on schoolwork, I worry that I might go crazy	.43 (.71)	0.00–2.00	1.34	0.29			.62	.80
4. When I feel strange, I worry that I might go crazy	.32 (.63)	0.00–2.00	1.78	1.87			.62	.80
30. It scares me when I cannot keep mind on task	.78 (.78)	0.00–2.00	0.41	-1.24			.54	.82
31. When my mind goes blank, I worry that something is terribly wrong with me	.67 (.74)	0.00–2.00	0.63	-0.94			.51	.82
<i>Factor 2: Fear of publicly observable anxiety reactions</i>	6.84 (3.9)	0.00–16.00	0.19	-0.79	.76	.77		
19. When I tremble in the presence of others, I fear what people think of me	.73 (.83)	0.00–2.00	0.55	-1.33			.61	.72
14. I worry that other people notice my anxiety	.88 (.75)	0.00–2.00	0.20	-1.20			.60	.72
26. When I sweat in the presence of others, I fear that people think negatively of me	.54 (.76)	0.00–2.00	0.99	-0.56			.60	.72
27. It scares me to blush in front of people	.57 (.75)	0.00–2.00	0.90	-0.65			.52	.74
2. It is important not to appear nervous	.92 (.76)	0.00–2.00	0.14	-1.25			.43	.75
28. It scares me when I feel like throwing up	.97 (.80)	0.00–2.00	0.05	-1.44			.30	.78
6. I think it would be awful to vomit in public	1.21 (.82)	0.00–2.00	-0.41	-1.41			.38	.76
10. I think it would be horrible to faint in public	1.02 (.83)	0.00–2.00	-0.04	-1.55			.35	.77
<i>Factor 3: Fear of respiratory symptoms</i>	5.09 (4.04)	0.00–14.00	0.45	-0.80	.88	.87		
13. When my chest feels tight, I am scared that I cannot breathe properly	.69 (.77)	0.00–2.00	0.60	-1.05			.74	.84
24. When my breathing is irregular, I fear that something bad will happen	.65 (.74)	0.00–2.00	0.65	-0.89			.72	.85
9. It scares me when I am short of breath	.94 (.76)	0.00–2.00	0.10	-1.27			.71	.85
5. It scares me when I have a feeling of choking	.73 (.80)	0.00–2.00	0.54	-1.22			.69	.85
17. When my throat feels tight, I am scared that I could choke to death	.54 (.76)	0.00–2.00	1.01	-0.53			.57	.87
1. When I feel like I am not getting enough air, I am scared that I might suffocate	.74 (.77)	0.00–2.00	0.49	-1.15			.69	.85
25. When I have trouble swallowing, I worry that I could choke	.81 (.77)	0.00–2.00	0.34	-1.23			.45	.88
<i>Factor 4: Fear of cardiovascular symptoms</i>	5.00 (4.99)	0.00–19.00	0.82	-0.32	.90	.90		
8. When my heart beats fast, I worry that something is wrong	.67 (.74)	0.00–2.00	0.61	-0.95			.74	.88
15. When I have pain in my chest, I worry that I am going to have heart attack	.44 (.68)	0.00–2.00	1.26	0.28			.70	.88
22. When my heart skips a beat, I worry that something seriously wrong	.60 (.73)	0.00–2.00	0.78	-0.72			.71	.88
18. It scares me when my heart beats fast	.65 (.74)	0.00–2.00	0.67	-0.88			.67	.88

Table 4. Continued.

Items	<i>M (SD)</i>	Range	Skewness	Kurtosis	ω	Cronbach' s α	Corrected item-total correlation	Cronbach' s α when item deleted
20. When I am dizzy, I worry that something is wrong with my brain	.46 (.67)	0.00–2.00	1.16	0.11			.65	.88
11. When my face feels numb, I worry that it might be stroke	.29 (.57)	0.00–2.00	1.82	2.29			.65	.88
21. When my stomach is upset, I worry that I might be seriously ill	.46 (.68)	0.00–2.00	1.18	0.11			.66	.88
7. When my heart is pounding, I worry that I could have a stroke	.43 (.68)	0.00–2.00	1.29	0.34			.68	.88
3. When I feel a strong pain in my stomach, I worry that it could be cancer	.45 (.72)	0.00–2.00	1.27	0.12			.55	.89
29. It scares me when I feel tingling or prickling sensations in my hands	.57 (.74)	0.00–2.00	0.89	-0.63			.41	.90

Table 5. Measurement invariance models of the PT-CASI-R scores by gender and age groups.

Gender						
Model	χ^2	df	CFI	RMSEA	RMSEA 90% CI	SRMR
Configural	1270.165	842	0.830	0.058	0.051, 0.064	0.089
Age						
Model	χ^2	df	CFI	RMSEA	RMSEA 90% CI	SRMR
Configural	1331.706	842	0.810	0.062	0.056, 0.068	0.099

Notes. χ^2 = chi-square; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = Standardized Root Mean Square Residual

Table 6. Correlations between PT-CASI-R and RCADS scores (controlling for gender).

	1	2	3	4
PT-CASI-R				
1. Fear of cognitive dyscontrol	-			
2. Fear of publicly observable anxiety reactions	.57	-		
3. Fear of respiratory symptoms	.61	.51	-	
4. Fear of cardiovascular symptoms	.73	.56	.75	-
RCADS				
Total score	.57	.50	.56	.54
Depression	.58	.43	.52	.51
Anxiety total score	.53	.49	.54	.53
Separation anxiety disorder	.26	.29	.36	.28
Generalized anxiety disorder	.35	.33	.42	.37
Panic disorder	.54	.43	.56	.54
Social phobia	.43	.43	.37	.40
Obsessive-compulsive disorder	.47	.40	.39	.42

Note. All correlations were significant at $p < .001$.

DISCUSSION

The present study examined the factor structure and psychometric properties of the Portuguese version of the CASI-R in a clinical sample of children with a diagnosis of anxiety, anxiety-related, or depressive disorder aged between 6 and 13 years. The results of this study suggest that the PT-CASI-R is a reliable and

valid measure of four important dimensions of anxiety sensitivity: fear of cognitive dyscontrol, fear of publicly observable anxiety reactions, fear of respiratory symptoms and fear of cardiovascular symptoms. The confirmatory factor analysis confirmed the hypothesized four-factor structure of the CASI-R. Although the hierarchical four-factor model also presented an adequate fit to the data, the correlated model was the best-fitting model. These findings are similar to those reported by Francis et al. (2019), largely confirming the four-factor structure that has emerged from theoretical conceptualization of the anxiety sensitivity construct in previous studies with this instrument (Francis et al., 2019; Silverman et al., 1999; Stassart et al., 2013). Nevertheless, these results do not exclude the adequacy of computing an anxiety sensitivity total score. Both the total score and subscale scores had adequate internal consistency, with Cronbach's alpha values above .70.

Regarding the construct validity of the scale, as expected, anxiety sensitivity was significantly positively associated with symptoms of several anxiety disorders and with symptoms of depression. These results are consistent with previous studies (Joiner et al., 2002; Stassart et al., 2013) showing that anxiety sensitivity may be a vulnerability factor for the development of various anxiety disorders in children. Particularly strong correlations were found between the PT-CASI-R and the RCADS total score, anxiety subscale score and panic disorder subscale score. These results suggest that anxiety sensitivity in children is related to a wide range of DSM-5 anxiety disorders and anxiety symptomatology, particularly to symptoms of panic disorder (Muris et al., 2001; Noël & Francis, 2011; Silverman et al., 2003). Previous studies have found that children with panic symptoms tend to report higher levels of anxiety sensitivity than children with other anxiety disorders (Noël & Francis, 2011). The results of this study indicate that the panic disorder subscale score consistently exhibited the strongest correlations with all CASI-R subscale scores. The present data do not support the pattern of correlations reported by Muris (2002), who found that panic disorder and agoraphobia were most strongly correlated with the fear of cardiovascular symptoms, fear of cognitive dyscontrol, and fear of respiratory symptoms factors and that social phobia was most strongly correlated with the fear of publicly observable anxiety reactions.

The results of this study also showed a significant correlation between anxiety sensitivity and the RCADS depression subscale score, especially with regard to the fear of cognitive dyscontrol subscale. Several authors have suggested that anxiety sensitivity may also be involved in depression (Otto et al., 1995; Taylor et al., 1996; Wauthia, et al., 2019). For instance, Taylor and Cox (1998) reported that the association between anxiety sensitivity and depression is related to a particular component of anxiety sensitivity (i.e., fear of loss of cognitive control), which is associated with the CASI-R fear of cognitive dyscontrol subscale. More specifically, it has been hypothesized that depressive symptomatology contributes to the maintenance of anxiety sensitivity by biasing the interpretation of anxious symptomatology in a negative direction (Otto et al., 1995).

Finally, it is also important to consider that the study sample exhibited a relatively low level of anxiety sensitivity ($M = 20.2$). One possible explanation for this finding could relate to the specific characteristics of the sample. Although participants are children with clinical emotional disorders, the lower anxiety sensitivity levels may suggest that other transdiagnostic factors—such as negative affect, cognitive distortions, or experiential avoidance—play a more prominent role in their symptomatology.

Contributions and Limitations

The present study has some limitations that should be addressed. First, all children in this study were from the central region of Portugal. Therefore, generalization of the results is limited, and future studies should replicate the study with a more representative sample of Portuguese children. More specifically, it is also important to consider the low level of anxiety sensitivity present in the study sample ($M = 20.2$). Consequently, further research is warranted to determine whether lower anxiety sensitivity in clinical samples represents a generalizable pattern or is specific to particular subgroups. Examining the interaction between anxiety sensitivity and other key factors, such as mindfulness skills and experiential avoidance, may offer deeper insights into the mechanisms underlying emotional disorders within this population.

In addition, it would be important to collect a larger sample that is more diverse and includes a greater number of children. Second, the validity assessment was limited in terms of the number and type of measures. Future studies should include other measures (e.g., State-Trait Anxiety Inventory for Children (STAIC); Spielberger et al., 1973) to further analyze the construct and divergent validity of the CASI-R. Third, the exclusive use of self-report measures may compromise the validity of our results. Thus, future studies should include a multimethod assessment strategy to corroborate these study conclusions.

Additionally, the model of PT-CASI-R failed to demonstrate invariance across gender and age groups (with low CFI values and high SRMR values), preventing any conclusions about potential differences based on gender or age. Thus, taking into account that the CFI value can be sensitive to small (< 100 participants) and moderate (100-200 participants) samples (Kline, 2015), it is suggested that future studies could

replicate this model using a larger sample of subjects. Additionally, the low factor loadings (below 0.31) in specific items highlights potential areas where the measurement model may not perform equivalently across groups. To address this limitation, future research could explore alternative items or refine the current ones to improve their performance across diverse groups.

Last, since this study included a psychological intervention phase, in which changes in the children's anxiety symptomatology are expected, it was not possible to determine the test-retest reliability of the CASI-R. Despite its limitations, this study enhances current knowledge regarding the factor structure and psychometric properties of the CASI-R in a clinical sample of children. To the best of our knowledge, this is the first study to validate the CASI-R in a clinical sample of children, supporting its use in clinical contexts and in research with children with anxiety or depressive disorders.

In summary, the results of the present study support the reliability and validity of the PT-CASI-R and suggest that it is a psychometrically sound measure for assessing anxiety sensitivity in Portuguese children with a diagnosed emotional disorder aged between 6 and 13 years. This measure might be particularly useful in clinical settings because it is simple to administer and evaluates a construct that seems to be strongly associated with several anxiety disorders in childhood. Thus, this study provides clinicians and researchers in Portugal with good psychometric quality measure that allows for the comprehensive but rapid assessment of anxiety sensitivity in children and encourages the development of further studies aimed at understanding the role of anxiety sensitivity in the development, maintenance, and treatment of emotional disorders.

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CRediT AUTHORSHIP CONTRIBUTION STATEMENT

Ana C. Góis: *Conceptualization; Methodology; Investigation; Data Curation; Formal Analysis; Writing - Original Draft.* **Brígida Caiado:** *Conceptualization; Methodology; Investigation; Writing - Review & Editing.* **Maria Cristina Canavaro:** *Writing - Review & Editing.* **Helena Moreira:** *Conceptualization; Writing - Review & Editing*

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Development and validation of a measurement of Bystander Intervention on Online Hate Speech towards Immigrants (BIOHS-Immigrants)

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Abstract: Online hate speech has profound implications for society, with migrants as primary targets. Underreporting by victims and bystanders obscures the true extent, indirectly legitimizing these crimes. To assess bystander intervention in online hate speech against immigrants, we developed a scale based on the five steps of the bystander intervention model. In Study 1 ($N = 294$), exploratory and confirmatory factor analyses confirmed the five-factor structure, having, as the final step, different types of actions that bystanders can adhere to when witnessing online hate speech. Structural equation modelling showed that, overall, each step was predicted by the preceding step, as proposed by the bystander intervention model. Study 2 ($N = 240$) replicated this finding and assessed the scale's criterion-related validity, revealing negative associations with moral disengagement and victim blaming, and positive associations with self-efficacy. We discuss the scale's relevance and applicability in studying bystander behaviour in response to online hate speech.

Keywords: *Bystander effect; Bystander intervention model; Hate crimes; Online hate speech; Immigrants.*

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SUPPLEMENTARY MATERIAL

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Table 1. Summary of Confirmatory Factor Analysis in Study 1.

	$\chi^2 (df)$	CMIN/DF	GFI	NFI	CFI	RMSEA [CI]	AIC	BIC
Model Initial Steps 1: Step 1 to 4 with four-step solution	92.85 (47)***	1.98	.951	.957	.978	.058 [.040, .075]	154.85	269.04
Model Initial Steps 2: Step 1 to 4 with three-step solution	110.65 (49)***	2.26	.941	.949	.971	.066 [.049, .082]	168.65	275.48
Model 1: Report through formal mechanisms	151.84 (80)***	1.90	.935	.944	.972	.055 [.042, .069]	231.84	379.18
Model 2: Report through social media	161.10 (79)***	2.04	.934	.948	.972	.060 [.046, .073]	243.10	394.13
Model 3: Public actions	136.56 (66)***	2.07	.938	.950	.973	.060 [.046, .075]	214.56	358.22
Model 4: Private actions	111.25 (66)***	1.69	.949	.954	.980	.048 [.032, .064]	189.25	332.91
Model 5: Aggressive response	216.08 (92)***	2.35	.920	.924	.955	.068 [.056, .080]	304.08	466.15
Model 6: Model with full scale	632.14 (261)***	2.42	.862	.884	.928	.070 [.063, .077]	812.14	1143.66

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 2. Summary of Structural Equation Modeling in Study 1.

	$\chi^2 (df)$	CMIN/DF	GFI	NFI	CFI	RMSEA [CI]	AIC	BIC
Model 1: Report through formal mechanisms	201,33 (85) ^{***}	2.37	.919	.926	.955	.068 [.056, .081]	271.33	400.26
Model 2: Report through social media	317.80 (85) ^{***}	3.74	.880	.897	.922	.097 [.085, .108]	387.80	516.73
Model 3: Public actions	212.89 (71) ^{***}	3.00	.913	.922	.946	.083 [.070, .095]	280.89	406.13
Model 4: Private actions	154.6 (72) ^{***}	2.14	.929	.936	.964	.062 [.049, .076]	220.16	341.72
Model 5: Aggressive response	239.98 (98) ^{***}	2.45	.911	.916	.948	.070 [.059, .082]	315.98	455.95
Model 6: Model with full scale	1028.52 (289) ^{***}	3.56	.773	.811	.856	.093 [.087, .100]	1152.52	1380.90

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3. Summary of Confirmatory Factor Analysis in Study 2.

	$\chi^2 (df)$	CMIN/DF	GFI	NFI	CFI	RMSEA [CI]	AIC	BIC
Model Initial Steps 1: Step 1 to 4 with four-step solution	79.91 (45)***	1.78	.946	.960	.982	.057 [.036, .077]	145.91	260.77
Model Initial Steps 2: Step 1 to 4 with three-step solution	90.61 (47)***	1.93	.940	.955	.978	.062 [.043, .081]	152.61	260.51
Model 1: Report through formal mechanisms	230.87 (78)***	2.96	.892	.912	.939	.091 [.077, .104]	314.87	461.06
Model 2: Report through social media	177.90 (79)***	2.25	.916	.936	.963	.072 [.058, .087]	259.90	402.61
Model 3: Public actions	148.03 (65)***	2.23	.921	.937	.963	.073 [.058, .089]	228.03	367.25
Model 4: Private actions	142.05 (66)***	2.15	.924	.938	.966	.069 [.054, .085]	220.05	355.80
Model 5: Aggressive response	143.68 (91)***	1.58	.931	.942	.978	.049 [.033, .064]	233.68	390.31
Model 6: Model with full scale	520.44 (260)***	2.002	.871	.889	.940	.065 [.057, .073]	702.44	1019.18

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 4. Summary of Structural Equation Modeling in Study 2.

	$\chi^2 (df)$	CMIN/DF	GFI	NFI	CFI	RMSEA [CI]	AIC	BIC
Model 1: Report through formal mechanisms	265.09 (84) ^{***}	3.16	.884	.899	.928	.095 [.082, .108]	337.09	462.39
Model 2: Report through social media	231.51 (83) ^{***}	2.79	.895	.916	.944	.087 [.073, .447]	305.51	434.30
Model 3: Public actions	165.56 (71) ^{***}	2.33	.909	.930	.958	.075 [.060, .090]	233.56	351.90
Model 4: Private actions	143.32 (71) ^{***}	2.02	.922	.938	.967	.065 [.050, .081]	211.32	329.66
Model 5: Aggressive response	166.77 (98) ^{***}	1.70	.919	.933	.971	.054 [.040, .068]	242.77	375.04
Model 6: Model with full scale	661.04 (285) ^{***}	2.32	.829	.859	.914	.074 [.067, .082]	793.04	1022.76

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Development and validation of a measurement of Bystander Intervention on Online Hate Speech towards Immigrants (BIOHS-Immigrants)

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Abstract: Online hate speech has profound implications for society, with migrants as primary targets. Underreporting by victims and bystanders obscures the true extent, indirectly legitimizing these crimes. To assess bystander intervention in online hate speech against immigrants, we developed a scale based on the five steps of the bystander intervention model. In Study 1 ($N = 294$), exploratory and confirmatory factor analyses confirmed the five-factor structure, having, as the final step, different types of actions that bystanders can adhere to when witnessing online hate speech. Structural equation modelling showed that, overall, each step was predicted by the preceding step, as proposed by the bystander intervention model. Study 2 ($N = 240$) replicated this finding and assessed the scale's criterion-related validity, revealing negative associations with moral disengagement and victim blaming, and positive associations with self-efficacy. We discuss the scale's relevance and applicability in studying bystander behaviour in response to online hate speech.

Keywords: *Bystander effect; Bystander intervention model; Hate crimes; Online hate speech; Immigrants.*

For the first time, on June 18, 2022, the International Day for Countering Hate Speech, was celebrated. This global celebration is part of the United Nations (UN) Strategy and Plan of Action on Hate Speech (UN, 2019), developed in response to the alarming rise of xenophobia, racism, and intolerance around the world.

Although there is still no consensus for an international legal definition, hate speech can be understood as “any kind of communication in speech, writing or behaviour, that attacks or uses pejorative or discriminatory language with reference to a person or group on the basis of who they are” (UN, 2019, p. 2). More specifically, hate speech corresponds to blatant discrimination that results in psychological aggression directed to an individual or group, simply based on attributes traditionally indicative of socially vulnerable or minority groups, such as gender, race, disability, religion, national and ethnic origin, and sexual orientation, or any other identity factor (e.g., UN, 2019).

Although hate speech is primarily a verbal behaviour, research suggests that it is often associated with prejudiced attitudes and aggressive intentions and it may be linked to other hate crimes, thereby having serious consequences both at the individual and societal levels. (e.g., Müller & Schwarz, 2018; Walters et al., 2016). At the individual level, evidence indicates that hate speech can have adverse psychological, emotional, and physical effects on victims, contributing to increased anxiety, feelings of humiliation, symptoms of depression, fear and insecurity (e.g., Dreißigacker et al., 2024; Waldron, 2012). At the societal level, it endangers fundamental human rights and democratic values and undermines social cohesion, social stability and peaceful coexistence by promoting social tension, violence, conflicts and division between social groups (UN, 2019). For instance, hateful content and inflammatory anti-migrant messages spread online by far-right political leaders were found to be associated with individuals' negative attitudes and threat perception towards migrants, online hate speech and the rise of (offline) hate crimes (Müller & Schwarz, 2018). Moreover, online hate speech prevalence and, particularly, perceptions that national institutions and/or social media platforms are ineffective at dealing with it, were found to undermine individuals' ability to notice and interpret an event as hate speech, leading them to minimize the impact and consequences of hate speech on victims (SELMA, 2019).

While hate crimes, such as hate speech, are increasingly visible, official statistics often underrepresent their true extent due to underreporting by both victims and witnesses, resulting in the impunity and encouragement of offenders (FRA, 2021; Pinto et al., 2023). This lack of reporting can significantly contribute to a skewed perception of the true scale of these crimes, which indirectly facilitates

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their normalization and perpetuation. The absence of public responses can be seen as acceptance or social legitimization, weakening social norms against the expression of prejudice (Álvarez-Benjumea, 2023). Furthermore, the lack of institutional and social responses to hate speech can encourage similar acts, creating a permissive atmosphere. Studies show that when bystanders fail to intervene in hate speech, such behaviour becomes normalized, with the absence of opposition perceived as tacit approval (Zapata et al., 2024).

Such passive or non-interventive behaviour may represent, itself, a surrogate or indirect, but no less consequential, discriminatory practice against socially vulnerable groups. Moreover, hate speech is, in fact, the hate crime that most enacts such passive or non-interventive behaviour, because of its potential interpretative ambiguity nature (see Papcunová et al., 2021). This passive behaviour can be explained within the theoretical framework of the bystander effect.

Bystander Effect

The tendency of a person witnessing (i.e., a bystander) an emergency situation and not seek or offer help to the victim or person in need, when other people are present, is known as *bystander effect* (e.g., Latané & Darley, 1969, 1970). The more people present, the less likely witnesses (bystanders) will intervene. It is proposed that bystanders' apathy occurs because each person feels less responsible to act in the presence of others (diffusion of responsibility) or because they infer, from the lack of intervention of the others, that the situation is not that serious (pluralist ignorance) (e.g., Latané & Rodin, 1969). Additionally, the fear of negative evaluations and embarrassment also contributes to the bystander effect, as the fear of making a mistake or failure while others are watching (e.g., Latané & Darley 1970).

Bystander effect in the cyberspace. The bystander effect, initially studied to explain individuals' lack of intervention in emergencies, has expanded to include antisocial and harmful situations like bullying, sexual harassment, and assault (Kettrey & Marx, 2020; Latané & Darley, 1969; Nickerson et al., 2014). More relevant to our work, researchers have also examined this effect within digital environments, where computer-mediated interactions often reduce personal accountability, amplifying the inaction of bystanders in response to hate speech (Jubany & Roiha, 2016; Markey, 2000; Obermaier et al., 2021). For instance, a report by the UK Safer Internet Centre (2016) shows that the majority of youths (82%) had witnessed online hate, but less than half had chosen to report it. Indeed, in online contexts, the bystander effect may be intensified due to factors such as anonymity, audience size, and the absence of immediate accountability, which reduce individuals' likelihood to intervene when witnessing hate speech (e.g., Barlińska et al., 2013). Additionally, the lack of personal contact and face-to-face interactions in online environments fosters a diffusion of responsibility, further diminishing bystanders' sense of accountability and willingness to take action (e.g., Latané & Darley, 1970; Siapera et al., 2018).

Social media platforms intensify these dynamics by enabling rapid and often anonymous communication, which amplifies the reach and impact of hate speech (UN, 2018). Furthermore, social control measures on these platforms are widely perceived as insufficient or ineffective in deterring online misbehaviour, which further reinforces bystanders' tendency to ignore harmful content (Jubany & Roiha, 2016). As a result, the online expression of overt intolerance and hate towards members of vulnerable or minority groups remains widely tolerated and indirectly legitimized, largely due to the bystander effect.

The Role of Bystanders in Online Hate Speech Towards Immigrants

While hate speech targets various social groups, hate speech against migrants has shown a troubling increase in recent years (UN, 2019). Intensified perceptions of threat and insecurity associated with the arrival of migrants and asylum seekers from diverse backgrounds have risen across Europe (Pinto et al., 2020). Consistently, the second European Union Minorities and Discrimination Survey (FRA, 2017) identifies immigrants as one of the groups most affected by discrimination and hate crimes in Europe. This trend has been intensified by events such as the Mediterranean migration crisis and the economic pressures of the COVID-19 pandemic, which have further fuelled discriminatory attitudes toward this population (Vega Macías, 2021).

In the digital context, the prevalence of online hate speech targeting immigrants is particularly concerning. Such speech is not only widespread but often goes unchallenged due to bystander inaction. This "silent" phenomenon is socially, politically, and legally neglected. It is rarely discussed in public discourse, and many people remain unaware of its existence, their own biased behaviour, and the broader societal consequences of this bias. By failing to intercede, bystanders inadvertently contribute to the normalization and perpetuation of racism, discrimination, and racial violence (Murrell, 2021). Thus, addressing the bystander effect in the context of online hate speech is paramount for combating prejudice and discrimination against minority groups (Stewart et al., 2014).

Bystander Intervention Model

Previous research has determined that bystanders' intervention requires five sequential and crucial steps, so that action actually occurs (i.e., bystander intervention model; Latané & Darley, 1969, 1970). According to Latané and Darley's (1970) bystander intervention model, in order to take action and counter the bystander effect, people have to (1) *notice the event* (i.e., becoming aware that something is happening), (2) *interpret the event as an emergency* (i.e., recognizing the situation as serious or requiring intervention, which includes determining that something is wrong and interpreting the situation as threatening), (3) *accept individual responsibility to intervene* (i.e., feeling responsible to act after recognizing that the situation requires help), (4) *know and decide how to intervene or provide help* (i.e., identifying what form of intervention to implement after accepting the responsibility to act), and finally (5) *implement intervention decisions* (i.e., taking action based on the decision made in the previous step). If any of these steps are not reached and completed, bystanders are less likely to intervene. Thus, in order to analyse the process that precedes bystander intervention (vs. bystander apathy – bystander effect), and the extent to which bystanders intervene (and how), facing online hate speech, it is crucial to assess all of the five steps.

Determinants of Bystander Behaviour

Theoretical and empirical evidence has shown that bystander intervention (prosocial behaviour) is negatively related to moral disengagement and victim blaming (a critical barrier for helping behaviour), and positively related to self-efficacy (e.g., Bandura et al., 1996; Clark & Bussey, 2020; Ferreira et al., 2020; Koehler & Weber, 2018; Machackova, 2020; Rudnicki et al., 2022; Stewart et al., 2014).

Moral disengagement. Moral disengagement refers to a set of psychosocial processes that enable individuals to justify morally questionable behaviours without altering their core moral standards, allowing them to avoid self-criticism or social disapproval (Bandura et al., 1996). These processes include mechanisms such as moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, dehumanization, and attribution of blame. Through these mechanisms, individuals can feel less guilt for ignoring critical situations, often by shifting responsibility to others or dehumanizing or blaming the victims. Research shows that moral disengagement is positively associated with the bystander effect and negatively related to prosocial behaviours, such as defending victims in situations of harm or discrimination (Gini et al., 2020; Sjögren et al., 2021; Thornberg et al., 2020). In online settings, moral disengagement may be exacerbated by factors such as anonymity and the lack of face-to-face interaction, which reduce personal accountability and discourage individuals from intervening in cases of hate speech or other harmful behaviours (Obermaier et al., 2021; Siapera et al., 2018).

Victim blaming. In addition to being one of the mechanisms of moral disengagement, victim blaming is also one of the major barriers to action identified by the bystander intervention model (Latané & Darley, 1970). It can prevent individuals from taking responsibility to intervene by attributing blame to the victim and shifting the responsibility for the situation or incident onto them. Indeed, research has shown that victim blaming—defined as the tendency to hold the victim responsible for their misfortune—lowers bystanders' intentions to help (e.g., Koehler & Weber, 2018).

Self-efficacy. Perceived self-efficacy corresponds to people's beliefs about their ability to plan and execute the necessary courses of action to produce a desired outcome (e.g., Bandura, 1998). As highlighted by Bandura (1998, p. 51), "perceived self-efficacy operates as a central self-regulatory mechanism of human agency". Research has shown that self-efficacy plays an essential role in the decision-making process to engage in helping behaviour (e.g., Ferreira et al., 2020), namely in the online context (Costello et al., 2017) and, thus, has the potential to decrease the bystander effect (Ferreira et al., 2020).

Bystander Intervention Measurement

Several instruments assessing bystander behaviour were already developed in previous research (although not all of them take into account Latané and Darley's bystander intervention model), for instance, in the context of bullying and sexual harassment (e.g., Nickerson et al., 2014), sexual violence (e.g., Bennett et al., 2014), interpersonal violence (e.g., Banyard, 2008), cyberbullying (e.g., Koehler & Weber, 2018; Bastiaensens et al., 2014), racism (e.g., Palmer et al., 2017) and prosocial behaviours towards refugees (Albayrak-Aydemir & Gleibs, 2021).

However, as far as we know, no instrument measuring bystander response facing online hate speech and, particularly, representing Latané and Darley's bystander intervention model, has been developed. Thus, this research aims to address this gap by developing a scale specifically designed to measure

bystander responses to online hate speech against immigrants, structured to align with Latané and Darley's bystander intervention model.

The Present Research

We have observed an alarming rise of xenophobia, racism and intolerance around the world (UN, 2019), resulting in an increase in hate speech against immigrants. Both victims and bystanders tend to fail to report such crimes, contributing, indirectly, to legitimize and perpetuate its occurrence. Thus, witnesses' action is crucial to combat prejudice and discrimination against immigrants (or against any other socially vulnerable or minority group). However, assessing witnesses' intervention (vs. passive observation) in the context of online hate speech is complex, largely because of the special characteristics of both hate speech (e.g., its potential interpretative ambiguity nature) and the cyberspace itself (that allows anonymity and reduces users' accountability). Thus, a measure to assess the process and necessary steps for bystander intervention against online hate speech towards immigrants represents an important and useful tool in this field.

Therefore, the aim of this investigation is to (a) develop and validate the Bystander Intervention on Online Hate Speech towards Immigrants (BIOHS-Immigrants) scale, which assesses individuals' likelihood of intervention when witnessing online hate speech directed at immigrants, grounded in the sequential bystander intervention model (Latané & Darley, 1969, 1970; Nickerson et al., 2014); (b) examine the extent to which each step of the bystander intervention model predicts the subsequent step; (c) explore how the bystander intervention model, as well as different intervention actions within online hate speech contexts, relate to moral disengagement, victim blaming, and self-efficacy.

Specifically, through two correlational studies, we anticipate that the BIOHS-Immigrants scale will exhibit a multifactorial structure, with five factors corresponding to each step in the bystander intervention model (Latané & Darley, 1969, 1970). The final step (i.e., Step 5 - Implementing the intervention decision) is expected to encompass distinct types of actions tailored to the online hate speech context (Study 1). Moreover, each step of the model is expected to predict the following step sequentially (Studies 1 and 2). Finally, we expect that the BIOHS-Immigrants scale will be negatively related to moral disengagement and victim blaming and positively related to self-efficacy (Study 2).

Data Analytic Strategy. We proceeded to the analysis of the factorial structure and psychometric properties including validity and reliability of the new scale. First, an exploratory factor analysis (EFA) was conducted, using principal axis factoring with oblique rotation (direct oblimin) with Kaiser normalization approach (i.e., eigenvalue > 1.00), to examine the factor structure of our BIOHS-Immigrants scale and to reduce the initial number of items. Then, we conducted a confirmatory factor analysis (CFA) to examine the quality of the final factor structure (i.e., test and validate the measurement model), and a structural equation modeling (SEM) to test the sequential steps of the bystander model (i.e., the actual path of the model itself) using a maximum likelihood estimation procedure.

For both CFA and SEM, the goodness-of-fit of the model was evaluated through multiple criteria (e.g., West et al., 2012), such as chi-square and the ratio of the chi-square to its degree of freedom (CMIN/DF), goodness-of-fit (GFI), normed fit index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). A good model fit should provide a non-significant Chi-Square (CMIN), and CMIN/DF should be ≤ 3 , but acceptable at values ≤ 5 (Marsh & Hocevar, 1985), indicating an excellent and a good fit, respectively. Moreover, according to previous recommendations, typically, for the GFI, NFI, and CFI, values > .90 indicate a good fit and > .95 a very good fit (e.g., Hu & Bentler, 1999; West et al., 2012; Whittaker & Shumacker, 2022). For the RMSEA, values of 0 (zero) indicate a perfect fit, values $\leq .05$ indicate "close fit" or "good fit", up to .08 indicate a reasonable fit, and values $\geq .10$ suggest a poor fit (e.g., Brown, 2015; West et al., 2012; Whittaker & Schumacker, 2022). The confidence interval (CI) for RMSEA (typically 90% CI) indicates the precision of the RMSEA point estimate (Brown, 2015).

We also used Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) to compare models with smaller values indicating a better fit (e.g., Kline, 2016).

Finally, for both CFA and SEM, Modification Indices (MI ≥ 3.84 ; Brown, 2015; Whittaker, 2012) were considered to perform post-hoc modifications, specifically the inclusion of additional parameters. Only within-factor error covariances were permitted, with associations added sequentially based on the highest MI to avoid overfitting. This process was repeated until no further modifications were necessary. All modifications implemented based on MIs were carefully evaluated to ensure they were theoretically justified. Specifically, correlated error terms were introduced only between items within the same factor, reflecting potential similarities in item wording or conceptual alignment. These adjustments aimed to improve the statistical fit of the model while maintaining the theoretical integrity of the bystander

intervention model (Latané & Darley, 1970). No modifications altered the fundamental structure of the model or the sequential nature of the steps.

For both CFA and SEM, standardized coefficients are always reported.

Regarding the reliability evaluation of the BIOHS-Immigrants scale, Cronbach's Alpha and inter-item correlation coefficients were used to estimate internal reliability of each dimension (subscales) of the BIOHS-Immigrants scale.

Additionally, we examine the construct validity of our BIOHS-Immigrants scale (Study 2), by evaluating the relationship with other theoretically related measures: moral disengagement, victim blaming, and self-efficacy. Pearson's correlation coefficient (Study 2) was used to assess the strength of association between the BIOHS-Immigrants scale and the related constructs.

All data analyses were performed with IBM SPSS Statistics v. 29 and IBM SPSS Amos v. 29.

STUDY 1

Method

Participants. Participants were 294 Portuguese citizens (160 female, 128 male, 6 indicated "other"), ranging from 18 to 78 years old ($M = 28.11$, $SD = 14.19$), 55% completed secondary education, 45% higher education, and less than 1% basic education. The majority were students (64%) and employed (27%), and the remaining were unemployed (5%), retired (4%), and less than 1% were housewife.

Regarding the left-right political spectrum, the average score on a 7-point Likert-scale (1 = *Left*, 7 = *Right*), was close to the scale midpoint of 4, though leaning left ($M = 3.26$, $SD = 1.47$). Participants were also asked about perceived socioeconomic status compared to other citizens of the country where they live on a 7-point Likert-scale (1 = *Very low*, 7 = *Very high*; $M = 4.13$, $SD = 0.96$).

The sample size was determined following established guidelines to ensure accurate factor solutions and stable parameter estimates. For EFA, we adhered to Hinkin et al. (1997), who recommend a minimum of 150 participants, as well as the commonly accepted subject-to-item ratio of at least 5:1 (Hair et al., 2014; Osborne, 2014), resulting in a minimum requirement of 210 participants for our initial pool of 42 items in Study 1. For CFA, we followed guidelines suggesting a sample size between 100 and 200 (Brown, 2015; Hinkin et al., 1997), while ensuring a minimum of 5 participants per item (Hair et al., 2014). For SEM, we followed recommendations to include at least 200 participants to achieve stable parameter estimates (Kline, 2016).

Procedure. Before conducting this investigation, all the procedures and materials were submitted, for analysis, to the Faculty of Psychology and Education Sciences of University of Porto Ethics Committee (Ref. 2021/07-09b) and data protection department.

The study was conducted using Qualtrics, and participants were contacted via online platforms (Facebook ads and Facebook groups, and University mailing list), to fill out a survey about online hate speech towards immigrants.

Participation was completely voluntary and 5 vouchers of €20 were raffled as compensation. After giving informed consent (which included information on confidentiality, anonymity, risks and benefits, contact information, etc.), participants provided sociodemographic information (e.g., age, gender, education). Next, participants read a text defining hate crime and online hate speech in particular, so that all participants started the survey with the same knowledge on the topic, namely being aware that hate speech is a hate crime legally framed by the Portuguese law and, thus, an undesirable and intolerable behaviour (full text is available at the online supplementary material, OSM 1).

Then, participants answered the initial item pool of our scale. On completion, participants were thanked, and further information about the project and online hate speech were provided.

Instrument. The items of our BIOHS-Immigrants scale were developed based on the theoretical framework of the bystander intervention model, following its five sequential steps (Latané & Darley, 1969, 1970), with adaptations for the context of online hate speech towards immigrants. For the initial item pool, we created specific item sets to capture each stage of the bystander intervention process, ensuring they reflected the unique characteristics of online hate speech: 1) noticing and identifying hate content online, 2) interpreting it as a serious occurrence, 3) accepting responsibility to intervene, 4) knowing how to intervene, and 5) intending to implement an intervention. Additionally, the scale development was informed by existing instruments, such as Nickerson et al.'s (2014) scale for bullying and sexual harassment, which measures this sequential process. We also examined measures that, while not explicitly structured around the sequential process, incorporate relevant aspects of bystander intervention across

several social contexts. In particular, we examined scales that assess actions bystanders might take in response to online hate speech (i.e., the final step). Thus, for the final step (Step 5 – Implement intervention decision), which includes potential helping behaviours in response to online hate speech, we drew on Palmer and colleagues' (2017) bystander response scale for racism in school, which categorizes responses as prosocial (e.g., "I would tell a teacher or member of staff what the person had said"), aggressive (e.g., "I would start a fight with the person who said something nasty..."), or passive (e.g., "I would ignore it and walk away"). We also drew on the work of Bastiaensens and colleagues (2014), who distinguish between public and private actions in a cyberbullying context. These include different types of helping intentions, such as asking for help (e.g., reporting the incident to someone who can assist, such as social media platforms, an organization, or a teacher), personally defending the victim (e.g., "*Defending Joni in a Facebook comment*"), or offering emotional support (e.g., "*Comforting Joni in a Facebook comment*"). Additionally, inspired by Banyard and colleagues' (2005) Bystander Behaviour Scale, we included items relating to seeking assistance from formal or support entities (e.g., "*Call 911 if a stranger needs help*", "*Call a rape crisis center or talk to a resident counselor*"). Finally, we drew on Koehler and Weber's (2018) Willingness to Help Scale, which includes confrontational actions directed toward the offender (e.g., "*I would publicly share a comment on Facebook in which I confront the bullies*"). For items involving formal or support entities, we tailored them to the resources available in the Portuguese context. These include the Portuguese Victim Support Association (APAV), which has a dedicated unit to support migrant victims of hate crimes, violence, and discrimination; the *Linha Internet Segura* (Safe Internet Line), which addresses issues related to online platforms and technology use and provides a service to report illegal content online, including hate speech; and Portuguese law enforcement and public security agencies (e.g., Public Security Police – PSP) and judicial authorities (e.g., Public Ministry – MP) that can be contacted to report crimes. Detailed information on the sources of each item of the final scale, modifications made to adapted items, and theoretical bases for new items can be found in OSM 2.

The initial pool comprised 42 items, approximately 6 items per step for the first four steps. Given the complexity of bystander intervention in online hate speech, the final step (Step 5 - Implement intervention decision) included 18 items covering a range of actions: (1) intention to report online hate speech through formal mechanisms (e.g., "I personally report the situation to the police..."), (2) intention to report through informal support organizations (e.g., "I report the situation to an organization that deals with online hate speech..."), (3) intention to report via social media using reporting tools (e.g., "I report the offender's post, comment, or tweet as abusive or hateful"), (4) intention to help the victim directly by defending them (e.g., "I defend the immigrant in a Facebook comment...") and (5) intention to help the victim indirectly by confronting the offender aggressively (e.g., "I insult the offender in an unpleasant way..."). The latter two types of actions include items relating to both private and public actions.

These items were designed to encompass common intervention actions at varying levels of personal investment or effort and potential cost or risks. For instance, reporting to the police may require more time and may involve dealing with legal procedures, which has been identified as a common reason not to report a hate incident (FRA, 2017).

For each item, participants were asked to indicate their level of agreement on a 7-point Likert scale (1 = *I fully disagree*; 7 = *I fully agree*).

Results

Exploratory factor analysis and initial item reduction. Following previous recommendations (e.g., Hinkin et al., 1997), the criteria for retaining the final set of items were as follows: a) item communality above .40, b) factor loading greater than .40, c) items that clearly loaded on a single factor. In addition, some items were also dropped due to conceptual redundancy or misfit. Using the preceding criteria, items were deleted and EFA was repeated (we applied a new EFA every time items were deleted) until we obtained a clear factor structure matrix. Through this process, 16 items were excluded, and the resulting scale consisted of a total of 26 items (see OSM 2 for the final scale with 26 items and respective dimensions).

The Kaiser-Meyer-Olkin (KMO) sample adequacy index showed a value of .83 and the Bartlett's sphericity test was statistically significant, with a $\chi^2(325) = 5267.70$, $p < .001$, showing that the correlation between items was high enough for meaningful extraction.

The exploratory factor analysis resulted in an eight-factor solution (see OSM 2 for loadings and communalities of the final items).

The 8-factor solution accounted for 70.64% of the overall variance: Step 1 – Notice the event corresponded to Factor 6 (4% of variance); Step 2 – Interpret event as severe and Step 3 – Accept responsibility to help loaded together on the same factor corresponding to Factor 1 (30% of variance); Step 4 – Know how to help corresponded to Factor 3 (9%); and Step 5 - Implement intervention decision

corresponded to Factor 2 (Aggressive response; 13% of variance), Factor 4 (Report through formal mechanisms; 5%), Factor 5 (Report through social media mechanisms; 4%), Factor 7 (Public actions; 3%), and Factor 8 (Private actions; 3%).

Since the EFA showed that the items corresponding to Step 2 – Interpret event as severe (items 3 and 4) and Step 3 – Accept responsibility to help (items 5 to 8) loaded together, the theoretical and empirical structures were tested and compared in the following analysis.

Confirmatory factor analysis (CFA). To assess the quality of the final factor structure, we conducted a CFA.

First, we started by testing and comparing models reflecting both the theoretical (four-step solution with separate factors for Steps 2 and 3) and empirical (three-step solution with combined factor for Steps 2 and 3) structures, regarding the initial Steps of the model (i.e., Step 1 to 4). As we can see in Table 1, the four-step solution model fits the data better (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$; see OSM 3 for CFA and SEM results before modifications for all models) than the three-step solution model (MI suggested correlating two error in the combined factor for Steps 2 and 3, and two error terms in Step 4: $e_3 \leftrightarrow e_4$, $e_{10} \leftrightarrow e_{12}$, respectively) confirming the theoretical structure. Based on these results, particularly the smaller AIC and BIC values observed for the four-step solution model compared to the three-step solution model, we proceeded with the subsequent analyses, retaining the two separate factors.

Then, we tested five independent models corresponding to the five steps of the bystander intervention model (i.e., Notice the event, Interpret event as an emergency or severe, Accept responsibility to help, Know how to help, Implement intervention decision), one model for each of the five types of actions in place of the final dimension (i.e., Implement intervention decision: Report through formal mechanisms, Report through social media mechanisms, Public actions, Private actions, Aggressive response).

As we can see in Table 1, the five-step solution model with Report through formal mechanisms subscale as the final step (see Models' Figures at OSM 4) fits the data in a good way, as well as the models with Report through social media mechanisms, that is, Informal mechanisms (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$), Public actions (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$), Private actions (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$), and with Aggressive response subscale (MI suggested correlating two error terms in Step 4 and two error terms in the Aggressive bystander response step: $e_{10} \leftrightarrow e_{12}$, $e_{23} \leftrightarrow e_{24}$, respectively).

Note that the number of each error term corresponds to the item number (see the complete list of items and their corresponding numbers in the OSM 2). We also tested the model with all Step 5 subscales (Model 6; see Table 1). However, this model (MI suggested correlating two error terms in Step 4 and two error terms in the Aggressive bystander response step: $e_{10} \leftrightarrow e_{12}$, $e_{23} \leftrightarrow e_{24}$, respectively) shows a poorer fit across several key indices compared to the other models. Specifically, the fit indices, including GFI (.862) and NFI (.884), were below the recommended thresholds, suggesting that the full model may not capture the structure of the data as effectively as the individual action-type models. Moreover, the full model had the highest values for both AIC (812.14) and BIC (1143.66), indicating a less efficient fit compared to the other models.

Structural equation modeling (SEM). In the next step of the data analysis, we tested the sequential steps of the bystander intervention model for each of the five types of actions.

As we can see in Table 2 (see Models' Figures at OSM 5), the models with Report through formal mechanisms subscale (MI suggested correlating two error terms in Step 4: $e_9 \leftrightarrow e_{11}$); Public actions (MI suggested correlating error terms in Step 4: $e_9 \leftrightarrow e_{10}$ and $e_{10} \leftrightarrow e_{12}$); and with Aggressive response (MI suggested correlating two error terms in Step 4 and two errors terms in Aggressive Response: $e_{10} \leftrightarrow e_{12}$ and $e_{23} \leftrightarrow e_{24}$, respectively) as final step provided an acceptable or good fit to the data and all of the direct paths (regression weights between latent variables for each sequential step in the model) were positive and statistically significant.

The model with the Report through social media mechanisms subscale provided a weak fit to the data.

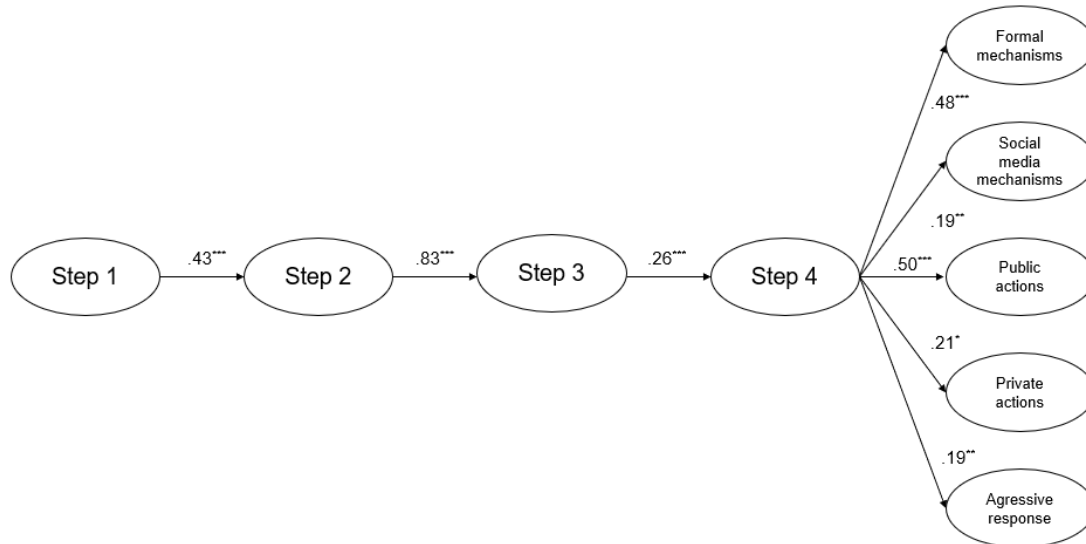
Moreover, although all the direct paths were positive and statistically significant between the initial Steps, the regression weights between latent variables Step 4 (Know how to intervene) and Step 5 - Report through Social Media mechanisms were marginally significant, $p = .089$ (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$). Given this result, we considered whether the sequential process might vary depending on the type of action, particularly as some studies, such as Albayrak-Aydemir and Gleibs (2021), have also found no significant relationship between Step 4 (Know how to intervene) and Step 5 (Implement intervention decision) regarding some of the potential types of actions. In fact, the behaviour of "reporting through social media mechanisms" may not necessarily require specific technical knowledge or detailed

preparation (i.e., Step 4). This type of action may rely more directly on motivation to help (Step 3 - Accepting responsibility). Therefore, we tested an alternative sequential model that included a direct link between Step 3 and Step 5. We observe that Report through social media mechanisms is predicted by Accepting responsibility to help (see OSM 5), and results indicate that this model demonstrates a good fit, suggesting that Knowing how to help (Step 4) may not be essential in the intervention process for this specific action: $\chi^2(df) = 196.14(84)^{***}$, CMIN/DF = 2.34, GFI = .920, NFI = .936, CFI = .962, RMSEA [CI] = .067 [.055, .080], AIC = 268.14, BIC = 400.74.

Similarly, although the model with the Private actions subscale provided a good fit to the data, and all of the direct paths between the initial Steps were positive and statistically significant, the regression weights between latent variables of Step 4 (Know how to intervene) and Step 5 - Private actions were non-significant, $p = .203$ (MI suggested correlating two error terms in Step 4: $e_{10} \leftrightarrow e_{12}$). As in the previous model, we tested an alternative sequential model that included a direct link between Step 3 (Accepting responsibility) and Step 5 - Private actions. We observe that Private actions is predicted by Accepting responsibility to help (Step 3), and results indicate that this model demonstrates a good fit, suggesting that Knowing how to help (Step 4) may not be essential in the intervention process for this specific action as well: $\chi^2(df) = 126.83(71)^{***}$, CMIN/DF = 1.79, GFI = .942, NFI = .947, CFI = .976, RMSEA [CI] = .052 [.037, .066], AIC = 194.83, BIC = 320.07.

We also tested this alternative sequential process (i.e., a direct link between Step 3 and Step 5) for the remaining models. The results indicate that including this direct link neither improves the model's fit for these actions nor alters the sequential process, supporting the need to maintain the originally proposed sequential structure. Thus, as expected, each step in the model was predicted by the preceding step, except for the models for the Report through social media mechanisms and Private actions subscales. This sequential structure will be further examined in Study 2.

Finally, we also tested the model with all Step 5 subscales (Figure 1). We observed that all the direct paths were positive and statistically significant, showing that all the steps were predicted by the previous step (note that all the proposed final steps were predicted by Step 4). MI suggested correlating two error terms in Step 4 ($e_{10} \leftrightarrow e_{12}$) and two error terms in Step 5 - Aggressive bystander response ($e_{23} \leftrightarrow e_{24}$). However, the model presented a weak fit to the data (see Table 2).



Note: All path coefficients are standardized estimates.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Figure 1. Simplified Graphical Representation of the SEM Model with All Step 5 Subscales in Study 1.

Reliability and descriptive statistics. Internal consistency was appropriate for all the steps of the bystander intervention model (see OSM 6 for reliability, descriptive statistics and bivariate correlations).

As expected, each step of the bystander intervention model is positively correlated with the subsequent step, and Step 4 is positively associated with all the proposed actions corresponding to Step 5.

Additionally, OSM 6 includes analyses of demographic data, such as differences between men and women across the steps and correlations between demographic variables (e.g., political orientation) and the steps, addressing the relevance of these factors to the model. Examining gender differences, we observe

that women generally scored higher than men across most steps, suggesting a stronger inclination to recognize and respond to online hate speech. Specifically, significant differences emerged in Step 1 (Notice the event), Step 2 (Interpret event as severe), and Step 3 (Accept responsibility to help), with women showing higher mean scores than men. However, in Step 4 (Know how to help), men scored higher than women. Additionally, we observed that women scored higher than men in Step 5 - Report through Social Media mechanisms. Conversely, men scored slightly higher in Aggressive Response. These findings suggest that gender may play a significant role in bystander intervention processes, with women potentially being more likely to identify and interpret online hate speech as severe and to accept responsibility for intervening.

Both groups showed higher mean scores for Step 5 - Report through social media mechanisms compared to other types of intervention actions, suggesting that individuals may be more inclined to rely on social media reporting tools as a preferred method for addressing online hate speech.

We also found that age has a significant negative correlation with Step 1: Notice the event, suggesting that older individuals may be less likely to notice the event. Conversely, age is positively correlated with Know how to help, Reporting through formal mechanisms, Public actions, and Aggressive response. Education shows a positive correlation with Know how to help but a negative correlation with Private actions, indicating that individuals with higher levels of education are more likely to know how to help and less likely to engage in private actions. Political orientation was negatively correlated with all steps of the intervention model. Finally, perceived social status did not show significant correlations with any of the steps, suggesting that social status may not influence bystander intervention behaviours.

Discussion

An EFA using principal axis factoring identified eight factors: three corresponding to the initial Steps of the Bystander Intervention Model (i.e., Notice the event, Interpret event as an emergency or as severe, Accept responsibility to help, Know how to help) and five corresponding to the final Step (i.e., Implement intervention decision), each representing different types of actions that bystanders might take when witnessing online hate speech. Contrary to our expectations, the items corresponding to Steps 2 (Interpret event as an emergency) and 3 (Accept responsibility to help) loaded onto a single factor. However, the CFA demonstrated a good fit to the data when these steps were modelled as distinct constructs. This finding suggests that the subscales of our measure align well with the original theoretical framework proposed by Latané and Darley (1970). According to the bystander intervention model, interpreting the severity of the problem (Step 2) is a distinct process from accepting personal responsibility to intervene (Step 3), and maintaining this distinction is critical for understanding specific barriers to intervention. For example, accepting responsibility to act may vary even when the severity of the situation is fully recognized. Distinguishing Step 2 and Step 3 allows for a more nuanced analysis, helping to identify whether barriers to intervention stem from difficulties in recognizing the gravity of the situation or from a reluctance to accept personal responsibility. This distinction is particularly valuable for designing targeted interventions to address these specific barriers.

We tested five separate models corresponding to the five steps of the bystander intervention model, with each model incorporating a different type of action as the fifth and final step (i.e., Report through formal mechanisms, Report through social media mechanisms, Public actions, Private actions, Aggressive response). The CFA revealed that the five-step model with each action type showed a good fit across models, indicating that our proposed structure for each type of intervention action was well-represented in the data.

SEM results generally demonstrated that each step was predicted by the preceding step in the model. However, two actions—Report through social media mechanisms and Private actions—did not show a significant relationship with Step 4 (Know how to help), suggesting that bystanders might proceed to intervene directly after accepting responsibility (Step 3) without requiring the additional step of knowing how to intervene (Step 4). This pattern may indicate that, in specific contexts, bystanders may feel ready to act once they acknowledge responsibility, bypassing the need for a detailed knowledge of intervention methods.

In testing an integrative model that included all Step 5 subscales, SEM results confirmed that all proposed final steps were predicted by Step 4, consistent with the expected sequential process (e.g., Latané & Darley, 1970). However, this model showed a weak fit to the data, suggesting that it may be more appropriate to consider five independent models, each corresponding to one of the proposed actions, rather than a single comprehensive model encompassing all potential actions. However, it is important to note that, for both CFA and SEM, combining all Step 5 subscales increases the complexity of the model, which can contribute to poorer fit indices. This is particularly likely if the subscales differ in their strength of association with preceding steps, as uneven relationships can challenge the model's ability to represent

a cohesive structure. Additionally, models with greater complexity may be more sensitive to sample size, as larger sample sizes generally provide more stable parameter estimates and reduce the likelihood of sampling error (Kline, 2016). Nonetheless, the applicability and advantages of the comprehensive model are re-evaluated in Study 2.

Overall, the findings from Study 1 provide strong initial support for the newly developed bystander intervention scale. The results align with the theoretical underpinnings of the bystander intervention model, while also highlighting potential variations in the intervention process based on specific types of actions. In Study 2, we re-evaluate the final scale's psychometric properties with a new sample, to confirm our findings, and determine the scale's construct validity by measuring the relationship between the five steps of the Bystander Intervention Model and theoretically relevant variables.

STUDY 2

Method

Participants. Participants were 240 Portuguese citizens (121 female, 116 male, 3 indicated "other"), ranging from 18 to 76 years old ($M = 37.58$, $SD = 14.93$), 57% with completed secondary education, 42% with higher education and less than 1% with basic education. The majority were employed (53%) or student (32%), and the remaining were unemployed (10%), retired (5%) and less than 1% were housewife.

Regarding the left-right political spectrum, the average score on a 7-point Likert-scale (1 = *Left*, 7 = *Right*), was close to the scale midpoint of 4, though leaning left ($M = 3.33$, $SD = 1.50$). Participants were also asked about perceived socioeconomic status compared to other citizens of the country where they live on a 7-point Likert-scale (1 = *Very low*, 7 = *Very high*; $M = 3.87$, $SD = 1.04$).

Procedure. We used the same data collection procedure as in Study 1. The study was conducted through Qualtrics, and participants were recruited via online platforms (e.g., university mailing list) to complete a survey on online hate speech towards immigrants. Participation was entirely voluntary, with five €20 vouchers raffled as compensation. After providing informed consent, participants completed sociodemographic questions (e.g., age, gender, education).

After completing the sociodemographic section and reading the definitions of hate crime and online hate speech, participants responded to the final version of the BIOHS-Immigrants scale developed in Study 1, along with related measures.

Measures. In order to examine the construct validity of the BIOHS-Immigrants scale we also included moral disengagement, victim blaming and self-efficacy measures. To minimize order effects, the BIOHS-Immigrants scale was presented first, followed by the related measures. This sequence ensured that responses to our scale were not influenced by subsequent constructs.

BIOHS-Immigrants scale. Participants were asked to respond to the final version of our scale with 26 items.

Moral disengagement. Participants answered a 24-item Moral Disengagement scale (based on Bandura et al., 1996) adapted to the context of online hate speech towards immigrants, integrating 6 of the 8 proposed mechanisms/dimensions (i.e., Moral justification, Displacement of responsibility, Diffusion of responsibility, Distorting consequences, Attribution of blame, Dehumanization; we excluded Euphemistic language and Advantageous comparison mechanisms due to the difficulty in adapting such items to the context of online hate speech; the full scale is available at OSM 7). All the 24 items (4 items per mechanism) were answered on a 7-point Likert-scale ranging from 1 (*Fully disagree*) to 7 (*Fully agree*). The scale revealed a good reliability (Cronbach's $\alpha = .97$; $M = 1.72$, $SD = 1.11$). Based on the one-factor solution proposed by the author (Bandura et al., 1996), we averaged the scores of all items to a Moral disengagement index, higher scores indicating higher moral disengagement regarding online hate speech towards immigrants.

Victim blaming. We used two items (based on Koehler & Weber's victim blaming scale, 2018) as a potential barrier to helping behaviour - participants' perceived diminished responsibility to intervene in case of hate speech, influenced by victim behaviour: "I am less likely to intervene facing online hate speech against an immigrant if I feel that s/he has done something to provoke such situation." and "If an immigrant has been aggressive or offensive to someone, I feel less responsible to intervene facing online hate speech against

the immigrant.”. We averaged participants’ responses into a Victim blaming index ($r = .65$, $p \leq .001$; $M = 3.02$, $SD = 1.58$).

Self-efficacy. Based on Banyard and colleagues’ work (Bystander efficacy scale; 2007) we created a 6-item self-efficacy scale. Participants indicated their agreement or disagreement with each sentence on a 7-point Likert-scale (1 = *I fully disagree*; 7 = *I fully agree*): (1) “I feel that I am able to confront people who direct hate speech against immigrants.”; (2) “I know what to do and what to say to help stop a situation of hate speech against immigrants.”; (3) “I know what to do and say to prevent a situation of hate speech against immigrants.”; (4) “I know what to do and say to reduce hate speech against immigrants.”; (5) “I have the necessary skills to comfort/support an immigrant who has been a victim of hate speech.”; (6) “I have the necessary skills to confront someone who is directing hate speech against immigrants.”. A principal components factorial analysis conducted on these items extracted one single factor accounting for 70% of the total variance. We averaged the scores of all items into a Self-efficacy index (Cronbach’s $\alpha = .91$; $M = 4.07$, $SD = 1.37$).

Results

Confirmatory factor analysis (CFA). As in Study 1, we started by testing and comparing models reflecting both the theoretical (four-step solution with separate factors for Steps 2 and 3) and empirical (three-step solution with combined factor for Steps 2 and 3) structures, regarding the initial Steps of the model (i.e., Step 1 to 4). The model fits of the four-step and three-step solution can be seen in Table 3.

As in Study 1, the four-step solution model demonstrates a better overall fit to the data compared to the three-step solution model, further supporting its theoretical structure. In the three-step solution, the modification indices suggested correlating five error terms within the combined factor for Steps 2 and 3 ($e3 \leftrightarrow e4$, $e4 \leftrightarrow e7$, $e6 \leftrightarrow e8$) and two error terms in Step 4 ($e10 \leftrightarrow e12$). It is important to note that, according to the theoretical structure, items 4 and 7 (i.e., corresponding to error terms 4 and 7) belong to different dimensions (see OSM 3 for CFA and SEM results before modifications). However, since these items are grouped together in the three-step solution, we applied this correlation to maintain consistency with the procedure of correlating errors within the same dimension.

Based on the model fit results, we proceeded with the subsequent analyses, maintaining Steps 2 and 3 as separate factors.

As in Study 1, we tested five independent models corresponding to the sequential five steps of the bystander intervention, having as fifth and final step one of the five types of actions in each model.

As can be seen in Table 3, the five-step solution model with the Report through formal mechanisms subscale as the final step demonstrates an overall acceptable fit to the data, although the GFI (.892) and RMSEA (.091) fall slightly below commonly accepted thresholds for model fit (see Supplementary Figures at OSM 8). MI suggested correlating two error terms in Step 3 ($e6 \leftrightarrow e7$), two error terms in Step 4 ($e9 \leftrightarrow e11$), and two error terms in Step 5 ($e17 \leftrightarrow e18$).

The model with the Report through social media mechanisms subscale also demonstrated an acceptable fit to the data (MI suggested correlating error terms in Step 3 and Step 4: $e6 \leftrightarrow e8$ and $e10 \leftrightarrow e12$, respectively). Similarly, the models for Public actions (MI suggested correlating error terms in Step 3, $e6 \leftrightarrow e7$, and in Step 4: $e9 \leftrightarrow e12$, $e10 \leftrightarrow e12$), Private actions (MI suggested correlating error terms in Step 3 and in Step 4: $e6 \leftrightarrow e8$ and $e10 \leftrightarrow e12$, respectively), and Aggressive response (MI suggested correlating error terms in Step 3, $e5 \leftrightarrow e7$, $e6 \leftrightarrow e8$, in Step 4, $e10 \leftrightarrow e12$, and in Step 5, $e25 \leftrightarrow e26$) showed acceptable fit indices.

We also tested the model with all Step 5 subscales (Model 6; Table 3).

As in Study 1, this model (MI suggested correlating error terms in Step 3, $e5 \leftrightarrow e7$, $e6 \leftrightarrow e8$, in Step 4, $e10 \leftrightarrow e12$, and in the Aggressive response step, $e25 \leftrightarrow e26$) shows a poorer fit across several key indices compared to the other models. Specifically, the fit indices, including GFI (.871) and NFI (.889), were below the recommended thresholds, suggesting that the model may not capture the structure of the data as effectively as models with individual Step 5 subscales. Moreover, the full model had the highest values for both AIC (702.44) and BIC (1019.18), indicating a less efficient fit compared to the other models. These results suggest that individual models may provide more robust and reliable fits compared to the full model, particularly due to the increased complexity when combining all subscales.

Structural equation modeling (SEM). Next, we tested the sequential steps of the bystander intervention model for each of the five types of actions.

As we can see in Table 4 (see Supplementary Figures at OSM 9), the models with the Report through social media mechanisms (MI suggested correlating error terms in Step 3, $e5 \leftrightarrow e6$, $e6 \leftrightarrow e8$, and in Step

4, $e_{10} \leftrightarrow e_{11}$, $e_{10} \leftrightarrow e_{12}$), Public actions (MI suggested correlating error terms in Step 3, $e_6 \leftrightarrow e_8$, and in Step 4, $e_9 \leftrightarrow e_{12}$, $e_{10} \leftrightarrow e_{12}$), and with the Private actions subscales (MI suggested correlating error terms in Step 3, $e_5 \leftrightarrow e_6$, $e_6 \leftrightarrow e_8$, and in Step 4, $e_{10} \leftrightarrow e_{12}$), provided an acceptable or good fit to the data and all of the direct paths were positive and statistically significant, showing that, as expected, all the steps were predicted by the previous step in the model.

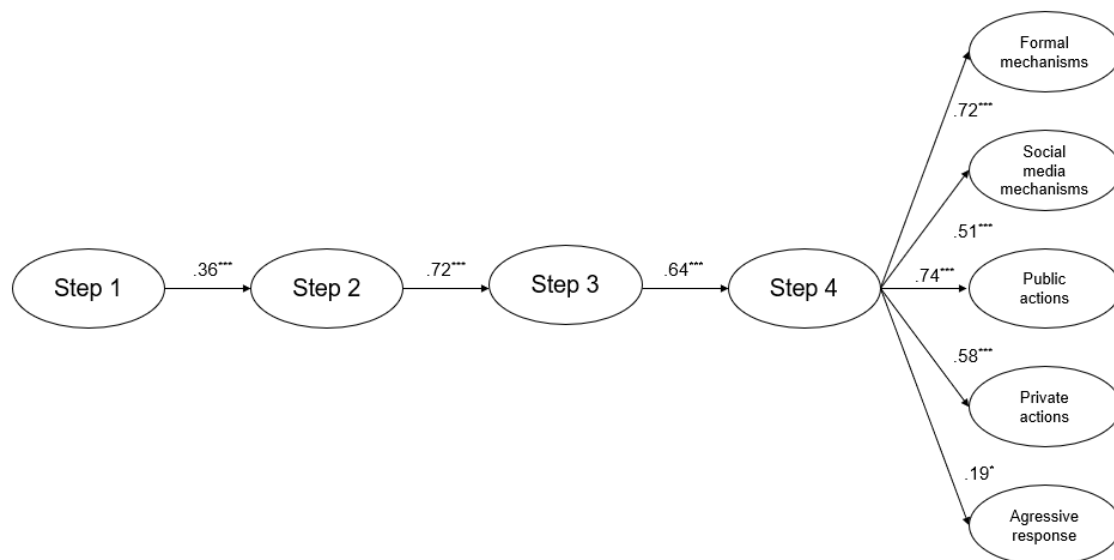
The model with Report through formal mechanisms (MI suggested correlating error terms in Step 3, $e_5 \leftrightarrow e_6$, $e_6 \leftrightarrow e_8$, and in Step 4, $e_{10} \leftrightarrow e_{12}$) demonstrated a weak fit to the data, with GFI (.884), NFI (.899), and RMSEA (.095) falling below commonly accepted thresholds for model fit. Nevertheless, all direct paths were positive and statistically significant.

The model with the Aggressive response subscale provided a good fit to the data, with all of the direct paths being positive and statistically significant between the initial steps (MI suggested correlating error terms in Step 3, $e_6 \leftrightarrow e_8$, in Step 4, $e_{10} \leftrightarrow e_{12}$, and in Step 5, $e_{25} \leftrightarrow e_{26}$). However, the regression weight between latent variables Step 4 (Know how to help) and Step 5 (Aggressive bystander response) was non-significant. $p = .381$. As in Study 1, we tested an alternative sequential model that included a direct link between Step 3 and Step 5; however, Aggressive bystander response was not predicted by Accepting responsibility to help.

We also tested this alternative sequential process (i.e., a direct link between Step 3 and Step 5) for the other models. As in Study 1, regarding the Report through social media mechanisms subscale, we observed that this type of action was better predicted by Accepting responsibility to help (Step 3) and results indicate that this model demonstrates a good fit, suggesting once again that Step 4 may not be essential in the intervention process for this specific action (see OSM 9): $\chi^2 (df) = 186.86 (83)^{***}$, CMIN/DF = 2.25, GFI = .910, NFI = .932, CFI = .961, RMSEA [CI] = .072 [.059, .086], AIC = 260.86, BIC = 389.64.

Regarding the remaining models, results indicate that including this direct link neither improves the model's fit for these actions nor alters the sequential process, supporting the need of maintaining the originally proposed sequential structure.

Finally, as in Study 1, we also tested the full model with all Step 5 subscales (Figure 2). We observed that all the direct paths were positive and statistically significant, showing that, as expected, all the steps were predicted by the previous step (note that all the proposed final steps were predicted by Step 4). MI suggested correlating error terms in Step 3, $e_6 \leftrightarrow e_8$, in Step 4, $e_9 \leftrightarrow e_{11}$, $e_9 \leftrightarrow e_{12}$, $e_{10} \leftrightarrow e_{11}$, $e_{10} \leftrightarrow e_{12}$, and in Step 5 – Aggressive response, $e_{25} \leftrightarrow e_{26}$). However, the model presented a weak fit to the data (see Table 4).



Note: All path coefficients are standardized estimates.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Figure 2. Simplified Graphical Representation of the SEM Model with All Step 5 Subscales in Study 2.

Reliability and descriptive statistics. As in Study 1, internal consistency reliability was appropriate for all the steps (subdimensions) of the bystander intervention model (see OSM 6 for reliability, descriptive statistics and bivariate correlations). As expected, each step of the bystander intervention model is positively correlated with the subsequent step, and Step 4 is positively correlated with the proposed actions corresponding to Step 5, except for Aggressive response.

Examining gender differences, and consistent with Study 1, we observe that women consistently scored higher than men across most steps of the bystander intervention model, except for Knowing how to help (Step 4), although the difference was not significant. Regarding Step 5, women scored higher than men in Report through social media mechanisms, indicating a greater likelihood to rely on social media reporting tools. Conversely, men scored slightly higher than women in Aggressive response, although the differences were not statistically significant. These findings suggest that gender may influence specific bystander behaviours, with women generally showing a stronger inclination to engage in prosocial and non-aggressive responses to online hate speech.

Consistent with the findings of Study 1, we observe that political orientation is negatively correlated with most steps of the bystander intervention model, while perceived social status shows no significant correlations with any of the steps. Age is positively correlated with Report through formal mechanisms and Public actions but negatively correlated with Report through informal mechanisms. Education shows a negative correlation only with Aggressive responses (see OSM 6).

Construct validity. To examine the construct validity of the new scale, we examined the relationship between the BIOHS-Immigrants scale and other theoretically related measures: moral disengagement, victim blaming, and self-efficacy (see OSM 6 for correlations between each Step of the BIOHS-Immigrants and the related measures). Overall, as expected, Moral disengagement and Victim blaming are negatively related with all subdimensions, except for Aggressive response, which is positively correlated with Moral disengagement and shows no significant relationship with Victim blaming. Finally, self-efficacy is positively related to all subdimensions, except for Aggressive response. These results give support for the theoretical validity of the BIOHS-Immigrants scale.

Discussion

As in Study 1, we tested five independent models corresponding to the five steps of the bystander intervention, with each model including one of the five types of actions as the fifth and final step. Overall, the CFA replicated the results of Study 1, demonstrating that the five-step solution model, with each of the five types of actions as the final step, provided a good fit to the data. These results further support the theoretical and empirical adequacy of the sequential five-step structure.

The SEM analyses also confirmed that, as expected, each step of the model was positively predicted by the preceding step, reflecting the sequential nature of the bystander intervention process. However, Aggressive response was an exception, as it was not predicted by Step 4 (Know how to help) nor Step 3 (Accepting responsibility to help). Moreover, as in Study 1, the alternative sequential model (i.e., including a direct link between Step 3 - Accepting responsibility to help and Step 5 - Taking action) for Report through social media mechanisms demonstrated a better fit to the data. This finding suggests that the sequential process outlined in the original model may not fully apply to this specific type of action.

As in Study 1, the SEM model with all the Step 5 subscales revealed that all proposed final steps were positively predicted by Step 4, aligning with the sequential decision-making framework originally proposed by Latané and Darley (1969, 1970). However, the model showed a weak fit to the data. Thus, consistent with Study 1, the results suggest that it may be more appropriate to consider five independent models, each corresponding to one of the proposed actions, rather than a single comprehensive model encompassing all potential actions.

To further assess the construct validity of the new scale, we examined its relationships with theoretically related constructs: moral disengagement, victim blaming, and self-efficacy. As hypothesized, the BIOHS-Immigrants scale was negatively correlated with both moral disengagement and victim blaming, and positively correlated with self-efficacy. These patterns support the theoretical premise that higher moral disengagement and victim blaming are barriers to prosocial intervention behaviours, whereas greater self-efficacy facilitates bystander intervention (e.g. Ferreira et al., 2020; Gini et al., 2020; Koehler & Weber, 2018). Notably, the Aggressive response dimension diverged from these patterns, being positively related to moral disengagement, but not related to victim blaming or self-efficacy.

Overall, these findings reinforce the validity and reliability of the BIOHS-Immigrants scale as a measure of bystander intervention in the context of online hate speech toward immigrants. The scale captures the sequential nature of decision-making processes, is theoretically grounded in existing models, and demonstrates strong construct validity through its relationships with related measures.

DISCUSSION

Across two studies, we provide first empirical support for a new scale of bystander intervention on online hate speech towards immigrants. Taken together, the results tend to confirm our initial hypotheses. Indeed, results support the proposed multifactorial structure of our scale, corresponding to the five steps of the

bystander intervention model (Latané & Darley, 1969, 1970), having as the final step (i.e., Implement intervention decision) five potential actions that individuals can engage in facing online hate speech, namely, Report through formal mechanisms (e.g., report to the police), Report through social media mechanisms (i.e., informal mechanisms, e.g., using Facebook report button), Public actions (e.g., defend the immigrant in a public comment in any social network platform), Private actions (e.g., defend the immigrant via private message to the offender), and Aggressive response (e.g., insult or threaten the offender).

As proposed by the bystander intervention theoretical framework, SEM showed that each of the initial steps of the model predicted the subsequent step. However, some inconsistencies emerged between studies regarding the relationship between Step 4 (Knowing how to help) and specific types of actions, namely Private actions and Aggressive responses. For instance, we observed a weak regression path between Step 4 and Aggressive responses in Study 1 ($\beta = .14, p = .037$), while no significant relationship was found in Study 2 ($\beta = .07, p = .381$). This suggests that Aggressive responses may not align with the sequential framework as originally proposed. Similarly, Private actions deviated from the expected pattern in Study 1 but not in Study 2. The differences observed in Private actions and Aggressive responses may be attributed to contextual or sample-specific factors, such as variations in participant demographics or levels of exposure to online hate speech. For instance, the majority of participants in Study 1 were students (64%) with a mean age of 28 years. In contrast, in Study 2, most participants were employed (53%), with only 32% being students, and the mean age was higher (38 years). These distinct sample characteristics may explain the discrepancies observed and the emergence of different sequential processes.

Additionally, across both studies, Report through social media mechanisms was consistently better predicted by Step 3 (Accepting responsibility to help), bypassing the need for Step 4.

Moreover, although SEM with all the proposed actions as final steps confirmed the expected predictive sequential effect in both studies, the overall model fit was weak. These findings suggest that future research may benefit from analysing the five types of actions in Step 5 as independent models, rather than relying on a complex, combined structure that includes all actions simultaneously.

Results also showed that, as expected, moral disengagement and victim blaming—concepts previously identified as barriers to bystander intervention (e.g. Gini et al., 2020; Koehler & Weber, 2018)—were negatively related to all the steps of the bystander intervention model. These findings support prior research indicating that moral disengagement and victim blaming inhibit the processes underlying the bystander intervention model, thereby diminishing the likelihood of progressing through its steps and engaging in helping behaviour. On the contrary, as proposed by previous research (e.g. Ferreira et al., 2020), self-efficacy seems to be aligned with the processes involved in this model, reflected in the positive relationship with all the steps, especially Step 4 (Know how to help).

Limitations and directions for future research

While the results across both studies provide evidence supporting the new scale and the proposed sequential model, they also highlight important limitations and inconsistencies that warrant careful consideration. Below, we discuss some of these limitations and propose directions for future research.

One of the limitations that can be raised is related to the use of two-items factors, as is the case of the subdimensions corresponding to Steps 1 and 2, and some of the proposed potential actions (Public and Private actions). Although two-item factors are considered acceptable when the items are highly correlated ($r > .70$; Yong & Pearce, 2013), some correlations in Study 1, such as Step 2 ($r = .64$) and Private actions ($r = .68$), were slightly below this threshold. However, in Study 2, these correlations exceeded the recommended value, strengthening the reliability of these factors. Moreover, a factor with two items is acceptable when there are strong theoretical and practical reasons, particularly given the multifactorial nature of our scale. Indeed, as our scale has several dimensions (a total of 26 items), keeping it as short as possible helps to reduce participant fatigue, frustration and boredom, and increases its usability, especially when used alongside other scales in longer surveys that can contribute to participants' withdrawal.

Another potential limitation concerns the reliance on self-reported intentions rather than actual helping behaviours as the final step in the bystander intervention model. Measuring real behaviours is more challenging but would provide more direct evidence of the model's application. Nonetheless, based on the Theory of Planned Behaviour (Ajzen, 2020), intentions are a strong and reliable predictor of future behaviour. Future studies should aim to measure actual behaviours, such as providing participants with an opportunity to report hate speech in a real or simulated online environment during the experiment.

Moreover, the influence of social desirability bias, particularly in responses related to prosocial intentions and actions, could be considered in future studies. This bias might lead participants to overreport socially desirable behaviours or underreport undesirable ones, especially given the sensitivity of the topic of online hate speech. Thus, to further strengthen future applications of the scale, research could incorporate methods to control for social desirability.

Future research could also explore how individual differences in internet usage goals (e.g., entertainment vs. news consumption) and exposure to online hate speech influence participants' responses. Perceptions of the prevalence of online hate speech may vary significantly based on internet usage profiles, including usage patterns, frequency, and primary goals. Investigating these differences by incorporating detailed measures—such as platforms frequented, types of interactions, hours spent online daily, and usage goals (e.g., entertainment, professional networking, or information seeking)—could offer valuable insights. This approach would provide a more nuanced understanding of how exposure to online hate speech interacts with individual characteristics to shape bystander intervention behaviours.

It is also important to note that in the items related to the Implement Intervention stage (Step 5), we included references to national institutions (e.g., police, governmental organizations) that play a role in responding to online hate speech. These references were included to reflect culturally relevant mechanisms for addressing hate speech. While these items were carefully designed, they were not pretested to assess participants' associations with these institutions. Future research could explore whether participants accurately associate these institutions with their intended roles in addressing hate speech, ensuring that responses reflect genuine beliefs rather than potential misunderstandings.

Finally, although we included a range of relevant and common actions in our scale, there are undoubtedly other potential bystander actions that were not captured. Future studies could expand the range of actions studied, ensuring the model's comprehensiveness and adaptability to diverse contexts.

Theoretical and empirical implications

The theoretical framework of the bystander effect and the bystander intervention model has been applied to a wide range of contexts, beyond the original focus on emergency situations. Namely, in the context of bullying (e.g., Nickerson et al., 2014), sexual assault or sexual violence (e.g., Bennett et al., 2014; Kettrey & Marx, 2020), helping behaviour towards refugees (Albayrak-Aydemir & Gleibs, 2021), computer-mediated communication (Markey, 2000), cyberbullying (e.g., You & Lee, 2019), and Islamophobic online hate speech (Obermaier et al., 2021). Although the sequential process proposed by the model was not assessed in some of these studies, the widespread application of the bystander intervention model underscores its relevance and adaptability across diverse contexts.

In the present research, we explored another critical context: online hate speech targeting immigrants. Our findings provide empirical support for the theoretical framework of the bystander intervention model within this specific domain. More importantly, we have developed a new instrument that has the potential to serve as a valuable tool for future research in this area. While the proposed scale was specifically designed to address online hate speech directed at immigrants, it has broader applicability. The scale can be easily adapted to study online hate speech targeting other socially vulnerable or minority groups, as the targets of hate vary widely. This flexibility makes the instrument a promising contribution to advancing research on bystander intervention across different forms of discrimination and online hate speech.

Concluding remarks

Our work is the first attempt, as far as we know, to apply the sequential process of bystander intervention model (Latané & Darley, 1969) to online hate speech towards immigrants. Specifically, we developed a new measurement to assess this process, incorporating five distinct types of potentially helping behaviours in response to online hate speech. By doing so, our work not only advances research on the bystander effect and bystander intervention but also makes a significant contribution to understanding the processes underlying the perpetuation and normalization of hate toward socially vulnerable or minority groups in digital spaces. Importantly, we provide researchers with a new, theory-based tool to investigate these processes, enabling a deeper exploration of how online hate speech can be challenged and mitigated in a context where it is frequently propagated and socially tolerated.

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CRediT AUTHORSHIP CONTRIBUTION STATEMENT

Catarina L. Carvalho: Conceptualization; Data Curation; Formal analysis; Investigation; Methodology; Writing - Original Draft; Writing - Review & Editing. **Isabel R. Pinto:** Conceptualization; Funding acquisition; Investigation; Methodology; Writing - Review & Editing. **Sara Alves:** Conceptualization; Methodology; Writing - Review & Editing; **Márcia Bernardo:** Conceptualization; Methodology; Writing - Review & Editing.

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SUPPLEMENTARY MATERIAL

Supplementary materials are available online at <https://osf.io/qg2ky/>

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Factorial analysis and invariance of the Portuguese version of the UCLA Loneliness Scale – Version 3

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Abstract: The objectives of this study are to analyze the psychometric properties of the data collected with the European Portuguese version of the UCLA Loneliness Scale version 3 (UCLA-LS-3) and to evaluate levels of loneliness and perceived social isolation in Portuguese adults. 802 individuals aged 18 to 82 years ($M = 35.12$; $SD = 15.67$) responded to the scale, and reliability and validity analyses were conducted. The total score of the UCLA-LS-3 exhibited a strong negative correlation with the Multidimensional Scale of Perceived Social Support. A three-factor model showed the best fit, demonstrating good fit [$\chi^2/df = 1.81$; $CFI = .99$; $RMSEA (90\% CI) = .032 (.026; .038)$]. This model showed only metric invariance between genders and only configural invariance between age groups. The results support the UCLA-LS-3 as a reliable and valid measure of loneliness for future research studies interested in assessing the psychological experience of loneliness in Portuguese population.

Keywords: Loneliness; Social isolation; UCLA Loneliness scale; Factorial structure.

In recent years, the study of loneliness in adulthood has been driven by the recognition of its high prevalence and its broad impacts on physical and mental health (Park et al., 2020), both for individuals and communities. The prevalence of loneliness has been increasing across age groups and in different countries (Cacioppo et al., 2015; Manoli et al., 2022; Surkalim et al., 2022), such as Portugal (under 30 years: 6.5%; 30–59 years: 9% and 60 years or older: 14.9%), the United Kingdom (under 30 years: 6.3%; 30–59 years: 5.5% and 60 years or older: 7.4%), Poland (under 30 years: 5.5%; 30–59 years: 11% and 60 years or older: 20.1%), and Russia (under 30 years: 11.3%; 30–59 years: 15.4% and 60 years or older: 24.4%; Rodrigues, 2018). McQuaid et al. (2021) report that loneliness levels seem to have increased even further during the COVID-19 pandemic.

Loneliness refers to a subjective feeling involving the evaluation of each person's social interactions and relationships, where a person experiences negative feelings related to a discrepancy between the person's desired and actual levels of social connection (Cacioppo et al., 2015; Gale et al., 2018; Sipowicz et al., 2021). Isolation is more objective and is described as a lack of social connection (Nicholson et al., 2020), representing a psychological or physical distance between the individual and other people (Hsu, 2020).

In general, these two concepts are related, but loneliness refers to the perception of social disconnection, while isolation focuses on the physical absence of social interactions (De Jong Gierveld & Van Tilburg, 2010). A person can feel lonely even in the presence of others (Bandari et al., 2019).

Loneliness represents a risk factor for physical health, including increased vulnerability to cardiovascular diseases (Valtorta et al., 2016), namely stroke, coronary heart disease, and hypertension and, ultimately, an increased risk of mortality (Cacioppo & Cacioppo, 2018). Loneliness is also associated with mental health problems (for a review see Valtorta et al., 2018), including anxiety (Horigian et al., 2021) and depression (Hwang et al., 2020). Loneliness has been also associated with reduced physical activity (Diehl et al., 2018) which is a risk factor for poorer mental and physical health.

Some sociodemographic characteristics appear to increase the risk of loneliness. Regarding age, loneliness is often considered more prevalent among older persons (e.g., Hawkey et al., 2019). However, increasing evidence has suggested that young adults are also considered a high-risk group for loneliness (Matthews et al., 2019; Hawkey et al., 2022). Hawkey et al. (2022) report that both young (under 30 years

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old) and oldest adults (over 80 years old) perceived similar levels of loneliness, the highest levels across lifespan. In this study, the lowest levels of loneliness were around age 40 and around age 70. Both young and oldest adults seem to report more loneliness but the factors underlying higher levels of loneliness in these two age groups seem to differ as pointed out by Hawkley et al. (2022). For young adults, the experience of life transitions, difficulties in social relationships and romantic connections, the excessive use of social media, and their identity still in development seem to contribute to the higher levels of perceived loneliness. Concerning older adults, the loss of spouses, friends, and family, difficulties in retirement adaptation, increased health and mobility issues, and more social isolation seem to underly their higher levels of perceived loneliness. Regarding gender, results are not consistent, as some studies find that women have higher levels of loneliness (e.g., Cohen-Mansfield et al., 2016), while others find a higher proportion of loneliness in men (e.g., Lauder et al., 2006). Loneliness is positively associated with less contact with family, friends, or neighbors (Hutten et al., 2021). Single individuals tend to have higher levels of loneliness compared to married individuals (Hawkley & Capitanio, 2015). Living in rural areas has been pointed out as a risk factor for loneliness (Kelly et al., 2019). Low socioeconomic status and lower levels of education (Cohen-Mansfield et al., 2016) are also associated with higher levels of loneliness. Social support is a protective factor against the phenomenon of loneliness (Chen et al., 2019), and seems to contribute also to the reduction of anxiety and depression symptoms (Mackenzie et al., 2011).

For the development of effective strategies and interventions to prevent and/or reduce loneliness-related health problems, more studies are needed for a further understanding of the impact of loneliness on health and its associated risk factors.

Concerning loneliness assessment, the UCLA Loneliness Scale (UCLA-LS; Russell, 1996) is the most used scale. To address gaps in existing versions of the UCLA-LS, such as high correlation with other constructs (e.g., depression) and inconsistent factorial structure, a 3rd version of the UCLA-LS (UCLA-LS-3) was developed with two parts, one with positive items or non-loneliness items, and another with negative items or loneliness items. This new version demonstrated better validity evidence and good internal consistency across different populations (Russell, 1996).

The UCLA-LS-3 has been adapted and validated for English-speaking populations (Russell, 1996), Irish population (Shevlin et al., 2015), Franco-Canadian and French populations (DiTommaso et al., 2007), Italian population (Boffo et al., 2012), Persian-speaking population (Zarei et al., 2016), Spanish population (Sancho et al., 2020), Korean population (Lee et al., 2021), German population (Hudiyana et al., 2022), Indonesian population (Hudiyana et al., 2022), Turkish population (Durak & Senol-Durak, 2010), and Japanese population (Arimoto & Tadaka, 2019).

Some authors theoretically assert loneliness as a single dimension/factor (unidimensionality; e.g., Lin et al., 2022). However, among the validation studies conducted, an inconsistent factorial structure has been found for data collected with UCLA-LS-3 (see Table 1). Unidimensionality has been found (Arimoto & Tadaka, 2019) but some studies suggested a two-related factors structure: negative and positive (Dodeen, 2014). Others even support a three-related factors structure for the data collected with UCLA-LS-3: "Isolation", "Relational Connection", and "Collective Connection" (Shevlin et al., 2015).

Recently, an adaptation to the European Portuguese population was also performed (Zeas-Sigüenza et al., 2023), but the sample size in this study is small and the data were collected during the COVID-19 pandemic, a period in which higher levels of loneliness were experienced due to pandemic containment measures (Strizhitskaya et al., 2021). Measurement invariance is necessary to future examination of the use of UCLA-LS-3 in different contexts and for different participants. Specifically, considering the influence of some sociodemographic variables on the levels of perceived loneliness, it is necessary to establish UCLA-LS-3's applicability to different age groups and genders.

To address the limitations of the study developed by Zeas-Sigüenza et al. (2023) with the Portuguese population, this study aims to conduct a more robust psychometric analysis of the UCLA-LS-3, specifically, we intend to: (1) characterize loneliness among Portuguese adults, (2) analyze the reliability and factorial structure of the scale for the Portuguese population (in a larger and heterogeneous sample of adults, including from young to older adults), and (3) assess the invariance of the factorial structure of UCLA-LS-3 across age groups and gender.

Table 1. Factor structures of the UCLA-LS-3, included items, and theoretical description of the factors

Factor Structure	Factors	Number of items	Included items
Two-factor structure (Dodeen, 2014)	<i>Negative</i>	10 items (2, 3, 7, 8, 11, 12, 13, 14, 17 e 18)	Items that describe negative feelings of loneliness.
	<i>Positive</i>	10 items (1, 4, 5, 6, 9, 10, 15, 16, 19 e 20)	Items that describe lack of experiences of non-loneliness or positive feelings.
Unidimensional (Arimoto & Tadaka, 2019)	<i>Loneliness</i>	20 items	Items that capture loneliness as a single dimension, without specific subdivisions.
Three-factor structure (Shevlin et al., 2015)	<i>Isolation</i>	11 items (2, 3, 4, 7, 8, 11, 12, 13, 14, 17 e 18)	Items that reflect feelings of loneliness, rejection, and withdrawal.
	<i>Relational Connection</i>	5 Items (10,15, 16, 19 e 20)	Items related to the lack of deep emotional connections.
	<i>Collective Connection</i>	4 Items (1, 5, 6 e 9)	Items related to the lack of belonging to a group or community.

METHOD

Participants

This study involved 802 individuals, aged between 18 and 82 years, with a mean age of 35.12 years ($SD = 15.67$). Of the participants, 222 (27.7%) were male and 580 (72.3%) were female. Regarding education, most of the sample had a college degree (67.7%), were single (58%), 51% were employed and 39.4% were students. Regarding perceived socioeconomic status, most of the sample rated it as medium (79.2%). Most participants resided in the North and Central regions of Portugal (73.7%), and 40.3% of individuals lived in moderately urban areas (see Table 2).

Table 2. Demographic Characteristics of the Sample ($N = 802$)

Variables	Participants	
	<i>N</i>	%
Gender		
Male	222	27.7%
Female	580	72.3%
Education level		
0-4th grade	8	1.0%
5-9th grade	28	3.5%
10th-12th grade	223	27.8%
Undergraduate degree	20	2.5%
Bachelor's degree	337	42.0%
Master's degree	153	19.1%
Doctorate	33	4.1%
Marital status*		
Single	465	58.0%
Cohabiting	55	6.9%
Married	219	27.3%
Divorced	42	5.2%
Widowed	11	1.4%
Other	9	1.1%
Geographical Area		
North	221	27.6%
Central	370	46.1%
Lisbon Metropolitan Area	44	5.5%
Alentejo	11	1.4%
Algarve	11	1.4%
Azores Autonomous Region	39	4.9%
Madeira Autonomous Region	106	13.2%
Residence*		
Predominantly rural area	179	22.3%
Moderately urban area	323	40.3%
Predominantly urban area	299	37.3%

Table 2. Continued.

Socioeconomic status*		
Low	15	1.9%
Medium	363	79.2%
Medium-High	142	17.7%
High	9	1.1%
Current employment status		
Employed	409	51%
Retired	44	5.5%
Student	316	39.4%
Working student	33	4.1%

Note: * missing ($n = 1$)

Instruments

Loneliness Scale -version 3 (UCLA-LS-3)

UCLA-LS-3 (Russell, 1996) is a self-report measure that assesses the subjective perception of loneliness and the experience of social isolation, adapted for the European Portuguese population by Zeas-Sigüenza et al. (2023). All items are assessed on a Likert-type response scale ranging from 1 (never) to 4 (always). Total scores range between 20 and 80, with higher scores indicating higher levels of perceived loneliness and social isolation (Zeas-Sigüenza et al., 2023). Of the 20 items in the UCLA-LS-3, nine items (1, 5, 6, 9, 10, 15, 16, 19, and 20) need to be reversed before any analysis (value 1 becomes 4, value 2 becomes 3, value 3 becomes 2, and value 4 becomes 1), as they measure the absence of loneliness rather than its presence. Before performing any analysis, the responses of the participants on the nine previously mentioned items were reversed, so that all items contributed equally to the total scale score. Considering the cutoff points for loneliness severity proposed by Cacioppo and Patrick (2008), UCLA-LS-3 scores were recoded into three categories: 1 = (0-27) “none/low loneliness”; 2 = (28-43) “moderate loneliness”; and 3 = (44-80) “high loneliness”.

The European Portuguese version of the UCLA-LS-3 showed excellent internal consistency for the total score ($\alpha = .91$; $\omega = .91$; Zeas-Sigüenza et al., 2023).

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support was developed by Zimet et al. (1988) and translated and validated for the Portuguese population by Carvalho et al. (2011). This scale consists of 12 items and uses a Likert-type response scale ranging from 1 (strongly disagree) to 7 (strongly agree), with a total score ranging from 12 to 84 points (Carvalho et al., 2011; Zimet et al., 1988). It consists of twelve items and aims to subjectively assess individuals' perceived social support across three domains: Friends (items 6, 7, 9, and 12; e.g., *I can count on my friends when something goes wrong.*); Family (items 3, 4, 8, and 11; e.g., *I can talk about my problems with my family.*); and Significant others (items 1, 2, 5, and 10; e.g., *There is one special person with whom I can share my joys and sorrows*). Although there is no absolute consensus, the total score cutoff points are generally interpreted as follows: 12 to 35 points (Low perceived social support), 36 to 60 points (Moderate perceived social support) and 61 to 84 points (High perceived social support). Regarding the MSPSS subscales, scores range from 4 to 28 points, where a higher score in each subscale indicates a greater perception of social support in the respective domain. In the present study, the MSPSS demonstrates excellent internal consistency for the total factor ($\alpha = .93$; $\omega = .93$) and for each of its three dimensions: family ($\alpha = .94$; $\omega = .94$), friends ($\alpha = .93$; $\omega = .93$), and significant others ($\alpha = .94$; $\omega = .94$). It was included to support construct validity of the UCLA-LS-3, since social support is expected to highly and negatively correlated with loneliness.

Sociodemographic questionnaire

The Sociodemographic Questionnaire included the following variables that have been associated with the levels of experienced loneliness: gender, education level, marital status, geographical area, residence, socioeconomic status, and current employment status.

Procedures

This study is part of the [anonymized for review] project approved by the Ethics Committee of [anonymized for review]. Inclusion criteria for the study included being 18 years of age or older and providing informed consent to participate. Social media was used to promote the study, and data was also collected through contacts with acquaintances, using the Google Forms platform, which allows for the creation, sharing, and collection of data through online forms. Participation was entirely voluntary, and there were no incentives

for individuals who participated in this study. The data collection took place in early February and ended in May 2022, during a period already without any COVID-19-related measures in Portugal.

Data analysis

The data collected were analyzed using JASP (Version 0.18.1.0) [Computer software] (JASP team, 2022). Descriptive statistics (mean, standard deviation, frequencies, and percentages) were conducted to characterize the sample and analyze loneliness levels. Across respondents' gender (two levels: men and women) and respondents' age (three levels: 18-30, 31-59, 60 or more years old). Considering the cutoff points for loneliness severity proposed by Cacioppo and Patrick (2008), UCLA-LS-3 scores were recoded into three categories: 1 = (0-27) "none/low loneliness"; 2 = (28-43) "moderate loneliness"; and 3 = (44-80) "high loneliness". Skewness (Sk) and kurtosis (Ku) values for all variables were analyzed to assess the assumptions of normality. Internal consistency analysis of each scale was performed by calculating Cronbach's alpha coefficient (α) for comparison with other studies, as well as McDonald's Omega (ω), considered the better option (Dunn et al., 2014). Values above .80 indicate good internal consistency and values above .90 and below .96 correspond to excellent internal consistency (Pallant, 2011).

To assess the relationship between scale variables, Pearson's correlation coefficient (r) was calculated. For non-linear relationships, the Spearman coefficient (ρ) was calculated. Kendall's coefficient (τ) was used to assess the relationship between scale variables and ordinal variables with less than 6 response levels or which did not follow a normal distribution. Dummy variables (dichotomous nominal variables) were created to assess the relationship of a scale variable with each category of nominal variables. Then, point-biserial correlation (r_{pb}) was calculated to obtain the correlation value between the dichotomous nominal variable and the scale variable. All correlation coefficients were interpreted according to Cohen (1988), who indicates that between .10 and .29 the correlation is weak, between .30 and .49 the correlation is medium and between .50 and 1.0, the correlation is strong.

Subsequently, Confirmatory Factor Analysis (CFA) was conducted to test the factorial structure of the UCLA-LS-3, to determine which model provided the best fit. The four models found in the literature review were tested: a) Unifactorial Model: one factor; b) Two-Factor Model: "social others" and "intimate others"; c) Two-Factor Model: "Negative" and "Positive"; and d) Three-Factor Model: Isolation, Relational Connectivity, and Collective Connectivity. The CFA models were adjusted using the Robust Diagonally Weighted Least Squares (RDWLS) estimator, which takes into account polychoric correlation matrices of Likert-type scales (Li, 2016). To determine model fit, multiple fit indices were used: the chi-square test (χ^2 ; ideally not significant); the Critical Chi-Square Ratio ($\chi^2/df < 5$, ideally < 3); the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), both above .95; and the root mean square error of approximation (RMSEA $< .09$). The four competing models were compared using the chi-square difference test ($\Delta\chi^2$) and the Akaike Information Criterion (AIC), with preference given to the model with the lowest AIC value. Finally, we conducted multigroup CFA to determine whether the best-fitting model was invariant across age groups (three levels: 18-30, 31-59, 60 or more years old) and gender (two levels: men and women). Previous studies identified differences across age groups (e.g., Hawkey et al., 2022) and gender (e.g., Lauder et al., 2006), only by measuring invariance we can ascertain if UCLA-LS-3 assesses perceived loneliness in the same way in these different groups. Configural, metric, and scalar invariance were tested. The existence of invariance was established by comparing each model to the less-restrictive model based on the chi-square difference test ($\Delta\chi^2$) and the difference between models concerning the CFI and TLI (ΔCFI and $\Delta TLI \leq .010$), and RMSEA ($\Delta RMSEA \leq .015$; Chen, 2007).

RESULTS

Characterization of Loneliness levels and its relationship with sociodemographic variables

In the studied adult population, the mean score for the overall UCLA-LS-3 was 43.86 ($SD = 9.11$; see Table 3). Considering the cutoff points for loneliness severity proposed by Cacioppo and Patrick (2008), UCLA-LS-3 scores were recoded into three categories: 1 = (0-27) "none/low loneliness"; 2 = (28-43) "moderate loneliness"; and 3 = (44-80) "high loneliness". Out of 802 participants, 51.1% ($n = 410$) of participants reported moderate loneliness, with scores between 28 and 43 on the scale. Another significant portion, 39.9% ($n = 320$) reported high loneliness, with scores ranging from 44 to 80 on the UCLA-LS-3. Finally, only 4% ($n = 32$) reported "none/low loneliness" (scores between 0 and 27).

Table 3. Descriptive statistics of the study variables

Variables	N	M (SD)	Minimum-Maximum	Sk	Ku
UCLA-LS-3	802	41.23 (8.64)	19-74	.229	.175
MSPSS	802	69.23 (13.34)	12-84	-1.41	2.19

Note: UCLA-LS-3 = University of California, Los Angeles Loneliness Scale (version 3); MSPSS= Multidimensional Scale of Perceived Social Support

Regarding the relationships between the UCLA-LS-3's total score and sociodemographic characteristics, significant weak negative correlations were found with age ($\rho = -.142, p < .001$), being married ($rpb = -.159, p < .001$), education level ($r = -.137, p < .001$), socioeconomic status ($\tau = -.121, p < .001$), and residence ($\tau = -.060, p < .05$). These results suggest that being older, married, with higher education levels, higher levels of socioeconomic status and living in more rural areas is associated with lower levels of perceived loneliness. A weak positive correlation was found between UCLA-LS-3's total score and being single ($rpb = .152, p < .001$), suggesting that being single is associated with higher levels of perceived loneliness.

Internal consistency

McDonald's omega indicated excellent internal consistency for the total score of the UCLA-LS-3 ($\alpha = .92$ and $\omega = .93$, see Table 4). The item correlation analysis was conducted after the score of each of the nine items was reversed, so that all items contributed equally to the total scale score. In turn, the item-total correlation analysis showed values equal to or greater than .5 (ranging from .5 to .74), except for items 8, 9, and 17 ($< .5$). The removal of any item did not improve the internal consistency of the UCLA-LS-3.

Table 4. UCLA-LS-3's internal consistency

Item Description	Corrected item-total correlations
1. How often do you feel "in tune" with the people around you?*	.503
2. How often do you feel a lack of companionship?	.538
3. How often do you feel that you have no one to turn to?	.666
4. How often do you feel lonely?	.650
5. How often do you feel part of a group of friends?*	.521
6. How often do you feel that you have a lot in common with the people around you?*	.638
7. How often do you feel that you are no longer close to someone?	.590
8. How often do you feel that your interests and ideas are not shared by the people around you?	.481
9. How often do you feel outgoing and friendly?*	.429
10. How often do you feel close to others?*	.640
11. How often do you feel excluded?	.675
12. How often do you feel that your relationships with others people are (deep or genuine)?	.610
13. How often do you feel that no one really knows you well?	.614
14. How often do you feel isolated from others?	.743
15. How often do you feel that if you wanted to, you could have companionship?*	.555
16. How often do you feel that there are people who truly understand you?*	.610
17. How often do you feel shy?	.412
18. How often do you feel that people are around you but not with you?	.651
19. How often do you feel that there are people you can talk to?*	.621
20. How often do you feel that there are people you can rely on?*	.649

Note: *Reverse scoring items

Confirmatory factor analysis (CFA): UCLA-LS-3' factorial structure

A Confirmatory Factor Analysis (CFA) was conducted to analyze the factorial structure of the UCLA-LS-3, comparing three models (M1 = Unifactorial Model - Loneliness; M2 = Positive or Non-Loneliness and Negative or Loneliness; M3 = Isolation, Relational Connectivity, and Collective Connectivity). The fit indices for each model are presented in Table 5. Based on the chi-square difference test, Model M3 (see Figure 1)

showed a significantly better fit, with the smallest difference found between M3 and M2, still with an advantage for M3.

Table 5. Fit indices of the models tested in the confirmatory factor analysis

Model	χ^2	<i>p</i>	χ^2/df	CFI	TLI	RMSEA (90% CI)	AIC
M1 (Unifactorial - Loneliness)	640.578	<.001	3.76	.97	.97	.059 (.054; .064)	28569.209
M2 (Negative or Loneliness and Positive or Non-Loneliness)	313.076	<.001	1.85	.99	.99	.033 (.027; .038)	27905.808
M3 (Isolation, Relational Connectivity, and Collective Connectivity)	303.616	<.001	1.81	.99	.99	.032 (.026; .038)	27852.196

Note. χ^2 (Chi-square test), χ^2/df (Chi-square per degrees of freedom), CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), RMSEA (Root Mean Square Error of Approximation) and AIC (Akaike Information Criterion)

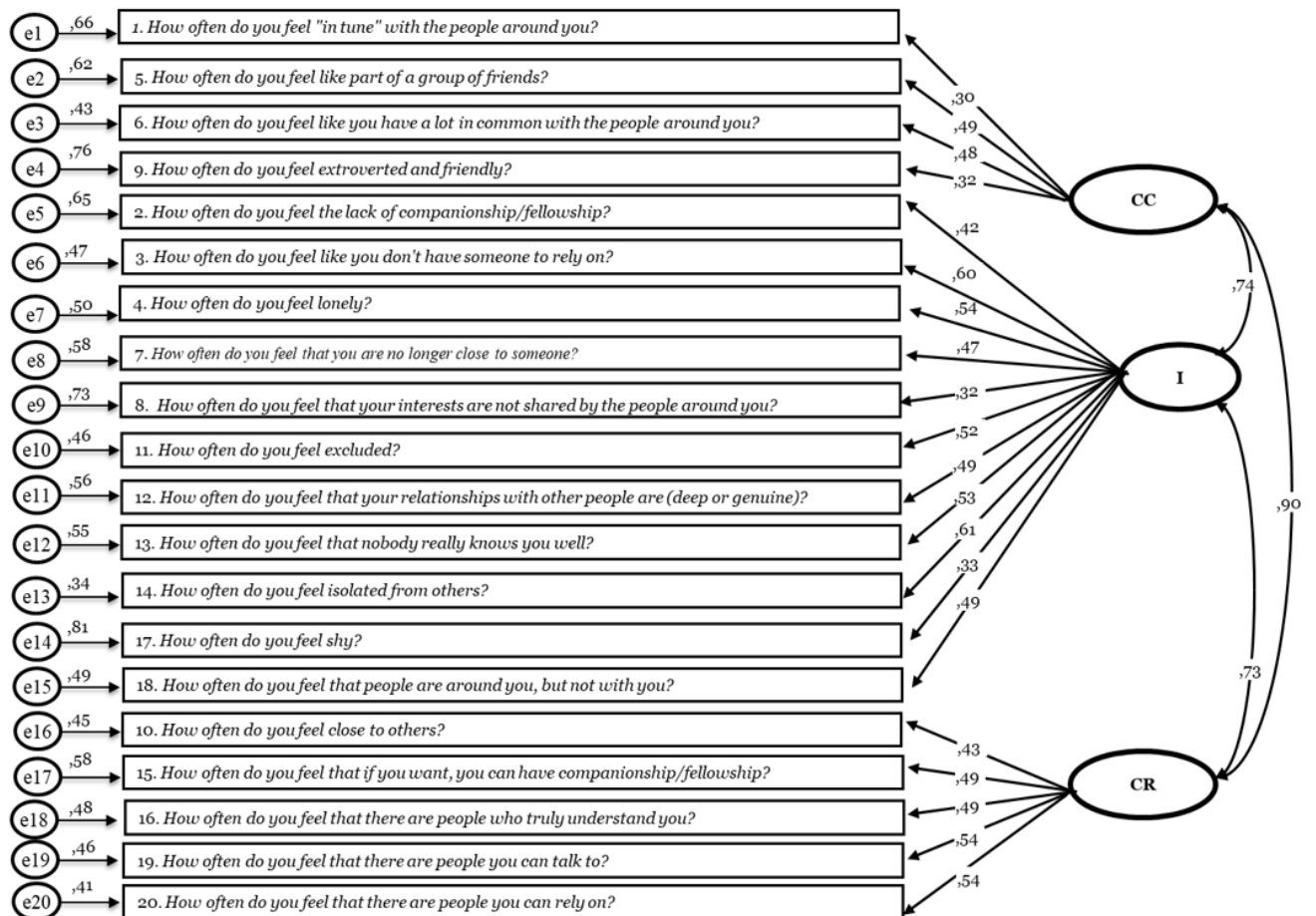


Figure 1. Factorial structure of the UCLA-LS-3 with three related factors: collective connectivity (CC); isolation (I); and relational connectivity (CR)

Internal consistency measures were calculated for each of the dimensions derived from the three-factor model of the UCLA-LS-3 (see Table 6): Collective Connectivity - Factor 1 ($\alpha = .69$; $\omega = .72$), Isolation - Factor 2 ($\alpha = .89$; $\omega = .90$), and Relational Connectivity - Factor 3 ($\alpha = .84$; $\omega = .85$).

Table 6. Descriptive statistics and internal consistency of the three-factor model of the UCLA-LS-3

Three-factor Model UCLA-LS-3	Number of items	Minimum – Maximum of each dimension	<i>M (SD)</i>	<i>M(SD)</i> responses to items in each UCLA-LS-3 dimension
Collective Connectivity (1, 5, 6, 9)	4	4 - 16	7.759 (1.912)	1.94 (.48)
Isolation (2, 3, 4, 7, 8, 11, 12, 13, 14, 17, 18)	11	11 - 44	26.97 (5.674)	2.45 (.52)
Relational Connectivity (10, 15, 16, 19, 20)	5	5 - 20	9.138 (2.72)	1.83 (.54)

UCLA-LS-3 total score relationship with its three subscales and with social support

The UCLA-LS-3's total score was positively and strongly correlated with each of its dimensions: Collective Sense ($r = .788, p < .001$), Isolation ($r = .937, p < .001$), and Relational Connectivity ($r = .841, p < .001$). UCLA-LS-3's total score and MSPSS' total score showed a negative and strong correlation ($r = -.607, p < .001$).

Model Invariance

We conducted multiple group confirmatory factor analyses to examine whether the best fitting model for UCLA-LS-3 factorial structure, the three related-factors model, was invariant across respondents' gender (two levels: men and women) and respondents' age (three levels: 18-30, 31-59, 60 or more years old). Goodness-of-fit indexes supported configural invariance of the best fit model across gender (see Table 7).

Table 7. Measurement invariance of UCLA-LS-3 across gender: men ($n = 222$) and women ($n = 580$)

Model comparison	$\Delta\chi^2$ (Δdf)	ΔCFI	ΔTLI	$\Delta RMSEA$
Metric-Configural	27.37 (17)	-.001	-.001	.003
Scalar-Metric	42.97 (20)	-.002	-.002	.004

Note. $\Delta\chi^2$ (Δdf) - Change in chi-square (Change in degrees of freedom), ΔCFI - Change in comparative fit index, ΔTLI - Change in tucker-lewis index and $\Delta RMSEA$ - Change in RMSEA (root mean square error of approximation)

Then, metric invariance or weak invariance was also tested and showed a good fit to the data. When comparing the configural and metric models, the chi-square difference test ($\Delta\chi^2$) was non-significant, thus supporting metric invariance. Metric invariance was also supported by a minimal change on fit indices ($\Delta CFI = -.001$; $\Delta TLI = -.001$; $\Delta RMSEA = .003$) in comparison with the configural invariance model. Lastly, scalar invariance or strong invariance was not supported by the chi-square difference test, despite model fit being good and the change on fit indices being minimal relative to the metric invariance model ($\Delta CFI = -.002$; $\Delta TLI = -.002$; $\Delta RMSEA = .004$). Table 8 summarizes the results of this analysis.

Concerning respondent's age, the best fitted model was compared across three recoded age groups (18-30; 31-51; 60 or more years old) and results supported only configural invariance.

Table 8. Measurement invariance of UCLA-LS-3 across age groups: 18-30 ($n = 436$); 31-51 ($n = 298$); and 60+ ($n = 68$)

Model comparison	$\Delta\chi^2$ (Δdf)	ΔCFI	ΔTLI	$\Delta RMSEA$
Metric-Configural	157.3 (34)	-.006	-.006	.027
Scalar-Metric	174.5 (40)	-.007	-.007	.012

Note. $\Delta\chi^2$ (Δdf) - Change in chi-square (Change in degrees of freedom), ΔCFI - Change in comparative fit index, ΔTLI - Change in tucker-lewis index and $\Delta RMSEA$ - Change in RMSEA (root mean square error of approximation)

DISCUSSION

The study analyzed the psychometric characteristics of the UCLA-LS-3 in a sample of the Portuguese general population, encompassing adults from different age groups (from 18 to 82 years). Compared to a previous study, including the adaptation and initial validation of the UCLA-LS-3 in Portugal (Zeas-Sigüenza et al., 2023), this study included a larger number of participants with diverse sociodemographic characteristics. It is also worth noting that the data were not collected during the COVID-19 outbreak, as in the study by Zeas-Sigüenza et al. (2023). Participants responded in a context without COVID-19 restrictive measures, regarding social distancing to control the pandemic, with an impact on reducing and even preventing physical contacts.

Regarding the total score of the UCLA-LS-3, weak and significant negative correlations were found with other sociodemographic variables, with lower perceived loneliness in married persons, with higher socioeconomic status and more years of formal education. Persons who are single in our study showed higher levels of perceived loneliness. These results support the findings of Hawkey and Capitanio (2015), suggesting that single individuals experience higher levels of loneliness than married individuals, and by Hyland et al. (2018), who found a higher risk of loneliness among divorced individuals.

In terms of reliability, this study's results demonstrated excellent internal consistency, consistent with previous studies (Hudiyana et al., 2022; Zeas-Sigüenza et al., 2023). Regarding the factorial structure of the scale, a three-factor related model (Isolation, Relational Connectivity, and Collective Connectivity) showed the best fit. This finding is consistent with previous validation studies of the UCLA-LS-3 in adolescent and adult samples (Hawkey et al., 2005; Shevlin et al., 2015). Isolation (the first factor) corresponds to the overall feeling of being isolated, representing individual social dissatisfaction (Hawkey et al., 2005). The second factor, Relational Connectivity, encompasses feelings of familiarity, proximity, and support, corresponding to a relational social self (Hawkey et al., 2005). These aspects of social support are vital for social connection with others and can mitigate the negative consequences associated with loneliness (Shevlin et al., 2015). Lastly, Collective Connectivity refers to group cohesion (collective social self; Hawkey et al., 2005).

In our sample, adults perceived a moderate to high level of loneliness. Considering the average response value per item in each dimension, in an exploratory manner, we observed a profile in which the participants reported more loneliness in the Isolation dimension than in the other dimensions. In other words, it is the Isolation dimension that contributes the most to the overall psychological experience of loneliness in our sample. Indeed, in this study, the value of Isolation is higher than that reported by Hawkey et al. (2005) in a study with a US population, while the Relational Connectivity and Collective Connectivity dimensions showed lower values in our sample. It is worth noting that this three-related factors model showed only configural and metric invariance across gender. In this regard, the model might not be fully invariant across genders and greater caution should be used when comparing mean scores between men and women. The uneven distribution of men and women in our sample could partially explain these findings since violations of invariance might not be detected. The group of women, with a larger sample, have more weight in determining the final solution, because the chi-square statistics include a weighting by sample size (Yoon & Lai, 2017). Only configural invariance was found when considering different age groups suggesting that the model is also only partially invariant across age groups. This seems to suggest that the European version of the UCLA-LS-3 does not assess the same loneliness dimensions across age groups. Nevertheless, model invariance across genders and age groups needs to be further investigated in future studies using groups with larger and balanced sample sizes.

Supporting the construct validity of the UCLA-LS-3, the total scores of the scale and MSPSS showed a strong negative correlation, indicating that as social support increases, loneliness levels decrease, and vice versa. Teater et al. (2020) found that individuals with a stable social network have more opportunities to avoid feeling lonely compared to those with a weak social network.

This research provides information on a topic that has received increased attention in Portugal and worldwide due to its potential implications for mental health. Our findings allow for a more robust and secure use of the European Portuguese version of UCLA-LS-3 compared to the data collected during the COVID-19 pandemic in the initial validation study. It facilitates integration and comparison of results with future studies, aiming for a better understanding of this topic.

Regarding the study limitations, a more representative sample concerning gender, age and other sociodemographic characteristics would be beneficial, as well as the possibility of better assessing the validity of the data collected with UCLA-LS-3 by comparing it to data collected with other already validated measures (e.g., other measures related to loneliness). Also, the development of normative data, for different age groups (i.e., adolescents, young, middle-aged and older adults) and gender could contribute to better identification of persons at risk due to high levels of loneliness. Finally, clinical validation studies are necessary, for example, by studying people with depression diagnosis and other relevant mental and physical health diseases in which loneliness should be addressed as a key psychological experience to better understand and intervene with those clinical populations.

Overall, the European Portuguese version of the UCLA-LS-3 has good psychometric properties for both research and clinical purposes and can be used for: a) assisting as a health indicator for health promotion programs and clinical interventions to alleviate loneliness; b) contributing to research development in the field; c) finding specificities of the psychological experience of loneliness considering its three related dimensions; d) by identifying the levels of loneliness it can contribute to better efficiency in the prevention and resolution of loneliness and related health problems.

Loneliness is a central construct in psychological functioning with health and social well-being implications. The UCLA-LS-3 can be confidently used in the Portuguese adult population and may serve as a relevant tool to other target groups (e.g., adolescents; clinical populations). Additionally, it allows for a more in-depth analysis of the results, including access to more complex data by incorporating the dimension scores contemplated in the UCLA-LS-3, beyond the total scale score. In the future, more explanatory or comprehensive studies on the psychological experience of loneliness will be key to understanding how loneliness is triggered and its relationship with other psychological constructs.

Loneliness has been referred to as a central construct in psychological functioning, with implications for health and social well-being. Future studies should investigate this issue by applying the UCLA-LS-3 to different populations. This study found excellent reliability and adequate evidence of construct validity for data collected with the European Portuguese version of the UCLA-LS-3.

FINAL CONSIDERATIONS

Loneliness has been referred to as a central construct in psychological functioning, with implications for health and social well-being. Future studies should investigate this issue by applying the UCLA-LS-3 to different populations. This study found excellent reliability and adequate evidence of construct validity for data collected with the European Portuguese version of the UCLA-LS-3.

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CRedit AUTHORSHIP CONTRIBUTION STATEMENT

Edna Moniz: Conceptualization, Methodology, Investigation, Writing - Original Draft. Luís Pires: Methodology, Formal Analysis, Writing - Original Draft, Review & Editing. Célia Barreto Carvalho: Conceptualization, Validation, Writing - Review & Editing. Rosa Marina Afonso: Conceptualization, Validation, Writing - Review & Editing.

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