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Psychometric analysis of the Italian Doomscrolling Scale: Associations with problematic social media use, psychological distress, and mental well-being

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Abstract

Doomscrolling is a fairly new concept in mental health research which has attracted significant attention in recent years. Doomscrolling involves individuals spending excessive time online reading unpleasant news, and leading to negative emotional states (e.g., sadness, anxiety, anger, etc.). Several studies have found that doomscrolling is associated with lower quality of life, poorer mental well-being, and problematic technology use. In Italy, there is a lack of instruments to assess this construct. Therefore, the main objective of the present study was to validate both the 15-item and four-item Doomscrolling Scale (DSS) to fill this gap. The sample comprised 300 Italians (70.7% females), with a mean age of 38.02 years (SD = ± 13.08). Participants completed an online survey comprising the DSS, Depression Anxiety Stress Scale (DASS-21), Warwick-Edinburgh Mental Well-Being Scale (WEMWBS), Satisfaction With Life Scale (SWLS), and Bergen Social Media Addiction Scale (BSMAS). The results of confirmatory factor analysis supported a first-order one-factor scale, with satisfactory fit indices. The DSS showed good internal consistencies (Cronbach alpha = 0.96 and McDonald omega = 0.96). Additionally, the DSS score was positively associated with scores on the BSMAS and DASS-21, and negatively associated with scores on the WEMWBS and SWLS. The short version of the DSS also demonstrated very good psychometric characteristics. The findings indicate that the both versions of the DSS are psychometrically reliable and valid measures for assessing doomscrolling activity among Italian adults. The study expands the literature regarding factors related to doomscrolling behavior.

Keywords Doomscrolling · Doomscrolling Scale · Italian validation · Psychometrics · Wellbeing

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Introduction

In recent years, the world has faced several natural disasters such as floods and earthquakes, as well as the COVID-19 pandemic. Compared to the past, individuals are now a lot more informed due to online news outlets and social media newsfeeds that can provide answers in times of uncertainty (e.g., individuals looking for solutions to protect themselves or understanding policy recommendations; Carleton, 2016; Satici et al., 2023). This need for knowledge may be due to individuals wanting to stay informed on unfolding events or a desire to feel control over specific situations, even if it is a perception of control (Carleton, 2016; Satici et al., 2023).

It has been noted that some individuals, in times of uncertainty caused by a major event (e.g., COVID-19 pandemic), spend a lot of time on their smartphone or other device (e.g., tablet), 'scrolling' through different websites and social media sites, in an almost compulsive manner, in search of information and news, most of which is negative (Watercutter, 2020). This relatively recent phenomenon has been termed 'doomscrolling' (Sharma et al., 2022; Ytre-Arne & Moe, 2021). Doomscrolling has been conceptualized as *"a habitual, immersive scanning for timely negative information on social media newsfeeds"* (Sharma et al., 2022, p.2). According to this definition and subsequent studies, doomscrolling takes the form of a negative cycle in which individuals find themselves trapped in a continuous search for negative news (Güme, 2024; Satici et al., 2023; Ytre-Arne & Moe, 2021).

Through algorithms, online search platforms and social media sites present consumers with content based on their browsing history (Nguyen, 2020; Price et al., 2022; Satici et al., 2023). Therefore, irrespective of whether an individual is actively searching for negative news or are confronted with personal factors such as a loss of self-control or are influenced by algorithmic systems that provide an uninterrupted news stream, for some individuals it is easy develop compulsive non-stop scrolling behavior (Satici et al., 2023; Sharma et al., 2022). Moreover, doomscrolling behavior has been suggested to have a negative association with conscientiousness, extroversion, and agreeableness, a positive association with neuroticism, and greater time (hours) spent on social media (Satici et al., 2023; Sharma et al., 2022).

Physical and mental health consequences of doomscrolling

The main physical and mental health consequences of doomscrolling are similar to those of problematic social media use (PSMU), and other problematic behavior (e.g., problematic exercise, problematic gaming, etc.) (Servidio et al., 2024; Soraci et al., 2023; Wathelet et al., 2020). For instance, an increased feeling of stress (i.e., constant exposure to negative news can increase stress levels, leading to physical symptoms such as headaches, sleep disturbances, and elevated blood pressure), anxiety (e.g., doomscrolling can heighten anxiety by amplifying the perception of threats and uncertainties), and depression (i.e., prolonged screen time and exposure to distressing content can contribute to depressive symptoms, reducing overall quality of life and psychological well-being [i.e., general distress]), which can lead to a lower quality of life and reduced psychological well-being (e.g., Apprich, 2022; Kaya & Griffiths, 2024; Rodrigues, 2022; Satici et al., 2023; Shabahang et al., 2023).

Moreover, doomscrolling has been associated with increased levels of psychological distress (e.g., Anand et al., 2022) which may lead to feelings of helplessness and despair over time because individuals struggle to break free from the cycle of negative news exposure (Satici et al., 2023; Sharma et al., 2022). This can contribute to a persistent state of mental fatigue and reduced psychological resilience, making individuals more vulnerable to stress and other mental health challenges (Satici et al., 2023; Sharma et al., 2022).

The cognitive-behavioral mechanisms of doomscrolling appear to involve heightened emotional reactivity, where individuals find it difficult to disengage from emotionally charged content, especially in response to fear-inducing news (Buchanan et al., 2021; Satici et al., 2023; Sharma et al., 2022). Studies on doomscrolling have specifically shown that it can exacerbate feelings of distress and helplessness, amplifying the emotional impact of negative news, which can trigger or worsen mental health issues such as anxiety and depression (e.g., Sharma et al., 2022; Satici et al., 2023). Moreover, research has shown that doomscrolling is often driven by heightened sensitivity to negative stimuli, which can lead individuals to focus more on threatening information as a coping mechanism, despite its adverse effects (e.g., Sharma et al., 2022).

The negative cycle of consuming distressing news can lower an individual's overall quality of life by creating a sense of helplessness and despair (Sharma et al., 2022; Satici et al., 2023), similar to the effects seen in problematic behaviors like problematic gaming, where individuals might retreat into virtual worlds to escape their real-life problems (Servidio et al., 2024; Soraci et al., 2023; Wathelet et al., 2020). Moreover, there is evidence that higher levels of doomscrolling are associated with poorer sleep quality, reduced productivity, and a tendency toward social withdrawal, further impacting well-being (Sharma et al., 2022; Satici et al., 2023). Additionally, some researchers suggest that doomscrolling can reinforce negative thought patterns and increase rumination, making individuals more susceptible to stress and anxiety over time (Sharma et al.,

2022). It has been suggested that more research is needed on the effect of doomscrolling on physical and psychological health (Satici et al., 2023; Sharma et al., 2022), and as aforementioned, there is growing evidence that this behavior is associated with higher levels of psychological distress and lower levels of mental well-being (Satici et al., 2023).

The development of the Doomscrolling Scale

Due to increasing research interest, Sharma et al. (2022) developed the Doomscrolling Scale (DSS) comprising 15 items, which allows researchers to explore associations between doomscrolling and other mental health-related variables.

Drawing upon a comprehensive theoretical framework that underscores the interplay between cognitive biases, affect regulation, and behavioral reinforcement, the concept of doomscrolling is understood as a maladaptive pattern of sustained engagement with negative online content. According to this perspective, individuals are drawn to distressing news and social media feeds due to an inherent negativity bias and the paradoxical relief derived from temporarily alleviating uncertainty and anxiety. This theoretical foundation not only highlights the emotional and cognitive processes involved in doomscrolling but also provides the impetus for the development of a dedicated assessment instrument.

The Doomscrolling Scale was developed following a methodological approach organized into successive, yet closely interconnected, phases. Initially, the researchers conducted a comprehensive literature review, clearly defining the construct of doomscrolling and identifying the main dimensions of the phenomenon. Based on theoretical insights, a series of items were generated to capture the various behavioral manifestations and the emotional implications associated with the behavior. These items, which originally formed a preliminary list, were subjected to qualitative evaluation by experts to assess their clarity, relevance, and adherence to the identified construct.

Subsequently, the scale was administered to a small sample in a pilot study. The collected data were analyzed through an exploratory factor analysis, which allowed the identification of the latent structure of the scale and the selection of the best-performing items, while eliminating redundant or poorly representative ones. A confirmatory factor analysis was then conducted on a different larger sample, verifying the adequacy of the model through specific statistical indices. Concurrently, the internal consistency of the instrument was assessed using Cronbach's alpha coefficient, and both convergent and discriminant validity were verified. In particular, the researchers correlated the scale with measures of negative emotional states, such as anxiety and depression, hypothesizing that a maladaptive behavior such as doomscrolling would be associated with elevated levels of psychological distress. The scale's ability to distinguish itself from other constructs, such as psychological well-being and adaptive coping strategies, was verified by observing inverse relationships with the latter.

Finally, the definitive model was tested on additional samples to confirm its robustness and generalizability. In summary, the entire process—which integrated theoretical definition, item generation and validation, as well as the verification of psychometric properties and associations with other relevant constructs—ensured that the Doomscrolling Scale is a valid and reliable instrument for research and clinical practice.

Moreover, the same authors developed a shorter version of the DSS, consisting of just four items (Sharma et al., 2022). The short version of the scale has demonstrated similar psychometric properties to the original 15-item version (Satici et al., 2023; Sharma et al., 2022). The scale has been reported to have good psychometric properties and has also been translated into Turkish (Satici et al., 2023).

The present study

In Italy, the absence of an adequate instrument to assess the phenomenon of doomscrolling leads to significant limitations in both scientific research and the field of mental health. This lack of a validated psychometric instrument prevents the accurate and reliable assessment of doomscrolling in Italy, compromising researchers' ability to study this behavior and its consequences in depth. The lack of empirical data makes it difficult to understand the extent of the phenomenon, its triggers, and its long-term implications for individuals' mental health and well-being in an Italian context.

In the field of mental health, the absence of a specific instrument to assess doomscrolling represents a significant obstacle for Italian health professionals, such as physicians and psychologists. These professionals find themselves without adequate means to assess the psychological impact of doomscrolling on their patients. Without valid and reliable measurement instruments, it becomes difficult to identify how much and in what way doomscrolling contributes to disorders such as anxiety, depression and chronic stress. This limitation impedes the making of accurate diagnoses and the planning of targeted and effective therapeutic interventions (Satici et al., 2023).

Moreover, the lack of an instrument to assess doomscrolling in Italy may hinder the development of prevention and intervention strategies at the public health level. Accurate and detailed data on doomscrolling behavior and its negative effects are essential to raise public awareness

and to create targeted information campaigns and support programs. Without this information, prevention initiatives risk being generic and ineffective.

Inadequate assessment of doomscrolling may also limit international research opportunities and comparability of data across countries. A standardized and internationally recognized instrument would allow Italian researchers to contribute more effectively to the global doomscrolling literature and collaborate more fruitfully with colleagues from other countries. The lack of such an instrument isolates Italian research and limits it in its growth and development potential (Satici et al., 2023).

Finally, the absence of an adequate assessment instrument could also negatively affect the training of mental health professionals. Without a thorough understanding and empirical data on doomscrolling, educational and training programs may not adequately address this emerging phenomenon, leaving new professionals less prepared to recognize and manage it among their patients. Therefore, developing an instrument to assess doomscrolling in Italy is essential to fill these gaps. Such an instrument would not only improve the quality of scientific research but would also provide mental health professionals with the necessary instruments to address this harmful behavior, therefore contributing to the psychological well-being of the population (Satici et al., 2023).

Therefore, the main objective of the present study was to examine the psychometric properties of both the 15-item and four-item versions of the Doomscrolling Scale (DSS) among individuals in the Italian population. Moreover, the study aimed to examine the main associations with related constructs (i.e., psychological distress, mental well-belling, life satisfaction, and problematic social media use). Understanding the interplay between doomscrolling and related psychological constructs is essential for a comprehensive assessment of its impact on mental health. Existing literature indicates that prolonged exposure to negative news can intensify feelings of anxiety, stress, and depression, while also undermining overall mental well-being and life satisfaction (Sharma et al., 2022; Satici et al., 2023). The compulsive nature of doomscrolling shares notable similarities with other online problematic behaviors, such as PSMU, suggesting that common cognitive-behavioral mechanisms may be involved. Moreover, understanding these relationships has practical implications.

The main aim of the present study was to translate and validate the DSS in the Italian context and evaluate its psychometric properties (i.e., factor structure and internal consistency). However, insights into how doomscrolling relates to psychological distress, PSMU, mental well-being, and life satisfaction can inform the development of targeted interventions and prevention strategies. Such findings are vital for clinicians and public health practitioners, enabling them to address the role of doomscrolling as a risk factor for deteriorating mental health and to develop effective strategies to mitigate its impact. Finally, these associations were examined to provide support for both convergent and discriminant validity of the DSS. In particular, it was hypothesized that: (i) both versions of the DSS would have a unidimensional structure and have adequate reliability in terms of internal consistency (H_1), (ii) scores on the DSS would be positively associated with anxiety, stress and depression (H_2), (iii) scores on the DSS will be negatively associated with good mental well-being and good quality of life (H_3), and (iv) scores on the DSS would be positively associated with problematic social media use (H_4).

Method

Participants and procedure

In order to determine the appropriate sample size, and since there is no consensus in the literature (e.g., Kyriazos, 2018), the recommendations of Bentler and Chou (1987) and Nunnally (1967) were followed. They recommend at least five to ten participants for each item per scale as ideal. Based on this recommendation, the minimum sample size required was 75 to 150 participants. Additionally, Kline (2023) recommends considering 10 participants per estimated parameter in a CFA model. For a scale with 15 items and 1 latent factor, 31 parameters (15 factor loadings +15 error variances +1 factor variance) would be required, which results in a minimum of 310 participants. However, for simpler models, such as a one-factor CFA, Kline (2023) notes that a sample size of 150–200 participants should yield reliable results. Therefore, a sample size of at least 150 participants was aimed for, while recognizing that a larger sample would be better for ensuring greater statistical power and robust parameter estimates.

Participants were recruited from various online platforms in Italy, including *Facebook*, *WhatsApp*, *Telegram*, and *Instagram*. The research team shared a survey link, inviting individuals to participate voluntarily and anonymously, with no financial compensation offered. To be eligible for the study, participants had to (i) be at least 18 years old, (ii) actively use at least one social media platform, and (iii) be fluent in Italian. After providing informed consent, participants anonymously completed the survey. Over a five-month period (from May to October 2024), 300 individuals completed the survey, which took approximately 20 min. There were no missing data because the online survey could not be submitted if questions were left blank.

Of the 300 participants, 70.7% were female (n = 212), with a mean age of 38.02 years (SD = 13.08). Regarding educational attainment, 45.3% had a bachelor's degree (n = 136), 24.3% had a high school diploma (n = 73), 20.7% had a postgraduate degree (e.g., PhD) (n = 62), and the remaining 9.7% had a lower level of education (e.g., middle school) (n = 29). Moreover, 76.3% of the sample were employed (n = 228) and 23.7% were university students (n = 72). Finally, 48.3% of the sample were single (n = 145), and 41.3% were married (n = 124). The remaining 11.4% (n = 34) had another type of relationship (e.g., in a non-marital relationship, widowed).

Ethics

The present study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki for research involving human participants and received approval from the Ethical Committee of Niccolò Cusano University in Rome (02/24–2024). Prior to participation, all participants provided informed consent. To ensure confidentiality, participant identities were anonymized, and data were securely stored in an encrypted online repository accessible only to the research team.

Measures

Doomscrolling Scale (DSS) The 15-item DDS (Sharma et al., 2022) was used to assess doomscrolling. Items (e.g., *"I lose track of time when reading bad news on social media"*) are rated on a seven-point Likert scale from 1 (*strongly disagree*) and 7 (*strongly agree*). Scores range from 15 to 105 with higher scores indicating greater doomscrolling. The psychometric properties of the scale are reported in the 'Results' section.

Short Doomscrolling Scale (DSS) The short version of the DSS (Sharma et al., 2022) comprises four items from the 15-item DSS (Items 1, 2, 10 and 12). Items (e.g., *"I feel an urge to seek bad news on social media*, *more and more*" often) are rated on a seven-point Likert scale from 1 (*strongly disagree*) and 7 (*strongly agree*). Scores range from 4 to 28 with higher scores indicating greater doomscrolling. The participants were asked to respond to the 15-item scale, and the responses were then used to calculate scores for the four-item scale (by using Items 1,2,10,12, see the Appendix in the Supplementary Materials) without requiring participants to respond to those items separately. The psychometric properties of the scale are reported in the 'Results' section.

Depression Anxiety Stress Scale-21 (DASS-21) The 21-item DASS-21 (Henry & Crawford, 2005; Italian version: Bottesi et al., 2015) was used to assess psychological distress (anxiety, stress and depression). Items (*"I felt as if I had nothing to look forward to"* and *"I found it difficult to relax"*) are rated on a four-point scale from 0 (*not at all*) to 3 (*very much*). Scores range from 0 to 21 for each subscale (anxiety, stress and depression, respectively) and higher scores in each subscale indicate greater anxiety, stress and depression. Moreover, by summing up the three subscales, an overall psychological distress score can be obtained (ranging from 0 to 63). The Italian version of the DASS-21 has a solid factorial structure with good fit indices (i.e., RSMEA = 0.03, NNFI = 0. 97, CFI = 0.98), and had a general factor (psychological distress), and three orthogonal factors (anxiety, stress and depression). In the original Italian validation study, the DASS-21 showed good internal consistency (Cronbach's α min = 0.74, max = 0.90), had robust convergent and discriminant validity, and showed significant relationships with other measures of anxiety, stress and depression. In the present study, Cronbach's alphas (α = 0.95 to 0.97) and McDonald's omegas (ω = 0.95 to 0.97) were excellent for all subscales and the total scale (α = 0.97, ω = 0.97).

Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) The 14-item WEMWBS (Tennant et al., 2007; Italian version: Gremini & Stewart-Brown, 2011 [reduced to 12 items]) was used to assess mental well-being. Items (e.g., *"I felt optimistic about the future"* and *"I felt cheerful"*) are rated on a five-point Likert scale, from 1 (*never*) to 5 (*always*). Scores range from 12 to 60 and higher scores indicate greater well-being. The Italian validation of the WEMWBS demonstrated a robust one-dimensional structure (i.e., RSMEA = 0.03, NNFI = 0. 97, CFI = 0.98), very good internal consistency (Cronbach's α = 0.87), and good convergent validity, as evidenced by high correlations with other mental health and psychological well-being scales. In the present study, Cronbach's alpha (α = 0.88) and McDonald's omega (ω = 0.88) were both very good.

Bergen Social Media Addiction Scale (BSMAS) The six-item BSMAS (Andreassen et al., 2016; Italian version, Monacis et al., 2017) was used to assess problematic social media use. The items (e.g., *"How long during the last year have you felt an urge to use social media more and more?"*) are rated on a Likert scale from 1 (*never*) to 5 (*very often*). The scores range from 6 to 30 and higher scores indicate greater problematic social media use. The Italian validation of the BSMAS demonstrated a robust one-dimensional

structure (i.e., RSMEA = 0.05, CFI = 0.99, SRMR = 0.02), very good internal consistency (Cronbach's α = 0.88), and good convergent validity with instruments assessing similar constructs, such as problematic internet use. In the present study, Cronbach's alpha (α = 0.87) and McDonald's omega (ω = 0.87) were both very good.

Satisfaction with Life Scale (SWLS) The five-item DWLS (Diener et al., 1985; Italian version: Fabio & Palazzeschi, 2012) was used assess life satisfaction, Items (e.g., *"Most aspects of my life are as I would like them to be"*) are rated on a seven-point Likert scale ranging from 1 (*totally disagree*) to 7 (*totally agree*). Scores range from 5 to 35 and higher scores indicate greater satisfaction in life. The Italian validation of the SWLS demonstrated a sufficient one-dimensional structure (i.e., RSMEA = 0.10, NNFI = 0. 97, CFI = 0.97), good internal consistency (Cronbach's α = 0.85, and good convergent validity, as evidenced by significant relationships with measures of related constructs such as mental well-being and self-esteem. In the present study, Cronbach's alpha (α = 0.92) and McDonald's omega (ω = 0.92) were both excellent.

Translation procedure

The translation of the DSS from English to Italian was conducted in accordance with internationally accepted procedures (International Test Commission, 2017), which recommend several key steps. These included an initial translation—entailing independent translations by bilingual experts with domain-specific knowledge; a translation review—whereby a team of experts ensured accuracy, clarity, and conceptual fidelity; a back-translation process to verify equivalence between the original and the translated versions (performed by two native language speakers); cultural adaptation to adjust the translation to the target population's cultural characteristics; and finally, confirmation and pilot validation through a pilot study designed to identify potential issues and collect feedback.

In the present study, two bilingual authors, both trained in psychology, independently translated the items from English into Italian. Their translations were then compared and merged into a single Italian version, with any discrepancies resolved through discussion and consensus. Subsequently, an independent native English-speaking translator—unaware of the original scale—conducted a back-translation to minimize bias and ensure accuracy. A review committee, comprising the original translators and the back-translator, examined all versions by comparing the back-translation with the original, thereby identifying and addressing any inconsistencies to secure both conceptual and cultural equivalence. Moreover, the review committee ensured that the test items were culturally appropriate and easily understood by an Italian-speaking audience. Prior to the final dissemination of the Italian version of the DSS, the translated scale was pilot tested with a small sample of individuals from various age groups and educational backgrounds (n = 10), with participants reporting no difficulties in understanding or responding to the items.

Both the recommended and the executed procedures shared fundamental steps—namely, an independent initial translation, subsequent review and integration of translations, and a back-translation to verify alignment with the original scale items. However, the recommended procedure typically involves external bilingual experts and a larger review panel (with the possibility of employing two translators for the back-translation), whereas in the present study, the translation and review were carried out by some of the authors themselves, and the back-translation was performed by a single native English speaker. Moreover, while cultural adaptation is delineated as a distinct phase in the recommended procedure, in the present study, this aspect was integrated into the overall review process and subsequently confirmed through pilot testing. This rigorous approach ensured that the Italian version of the DSS maintained the integrity, validity, and conceptual accuracy of the original scale (see Appendix 1 for details).

Data analysis

First, the normality of the data was examined following the guidelines of Muthén and Kaplan (1985), who recommend that the skewness and kurtosis of the items are ideally within the range ± 1. Subsequent analyses included: (i) descriptive statistics of the DSS items (e.g., means, standard deviations), and (ii) assessment of internal consistency by calculating Cronbach's alpha, McDonald's omega, and composite reliability (CR), considering values of 0.70 or higher as good (Cheung et al., 2024; McDonald, 1999). The factorial structure and dimensionality of the Italian DSS were analyzed using confirmatory factor analysis (CFA). Specific indices, such as NNFI (non-normed fit index ≥ 0.95, minimum value 0.90), CFI (comparative fit index ≥ 0.95, minimum value 0.90), RMSEA (root mean square error of approximation ≤ 0.08, maximum acceptable value 0.10) and SRMR (standardized root mean square residual ≤ 0.06, maximum acceptable value 0.08), were used to assess dimensionality (Fornell & Larcker, 1981; Hu & Bentler, 1999; Kline, 2011, 2016).

A threshold for item saturation was established, suggested to be at least 0.50 (λij ≥ 0.50; Kline, 2011, 2016). In order for items to be considered valid indicators of the latent construct (i.e., doomscrolling), they must exhibit a significant correlation of at least 0.50 (e.g., Kline, 2016) with the

total latent factor (i.e., the total score of DSS), although, in theoretically justified cases, it is possible to accept correlations between 0.30 and 0.50 (Kline, 2016).

Convergent and discriminant validity were assessed following the guidelines of Cheung et al. (2024), outlining the construction of a model. The construction of a model included the primary measures (i.e., DSS, BSMAS, WEMWBS, SWL, stress, anxiety, and depression [DASS-21]) (see the model code in the Supplementary Materials). By using the 'measureQ' function and building the corresponding model, it was possible to thoroughly examine (i) standardized factor loadings, (ii) average variance extracted, (iii) cross-loadings, (iv) the value of AVE with respect to the squared correlation coefficients, and (v) heterotrait-monotrait ratios within a single framework. This function also assesses whether the constructs are valid, ensuring that the indicators accurately represent the intended constructs and do not overlap with others in the model, based on key model fit indices (i.e., RMSEA, CFI, SRMR). If the overall model fit demonstrates alignment with the data (Cheung et al., 2024), it satisfies the foundational requirement for evaluating reliability, and both convergent validity and discriminant validity.

For convergent validity, the criteria included were (i) composite reliability (CR) values of 0.7 or higher, (ii) all standardized factorial loadings (λ) of 0.5 or higher, and (iii) average variance extracted (AVE) values of 0.5 or higher (Cheung et al., 2024). For discriminant validity, the following criteria were adopted: (i) the absence of cross-loadings of the indicator on other constructs, (ii) the squared correlation must not be significantly higher than the corresponding AVE, and (iii) a heterotrait-monotrait correlation ratio (HTMT) less than 0.85, indicating good discriminant validity (Cheung et al., 2024). Finally, correlations were calculated to determine the relationships between the DSS and the other variables, to evaluate the DSS's convergent and discriminant validity. More specifically, for convergent validity, medium-high values were expected (e.g. a value above >0.50 between the DSS and psychological distress), while for divergent validity, medium-low values were expected (e.g. values below <0.50 between the DSS and life satisfaction). More generally, the discriminant validity coefficients should be smaller than the convergent validity coefficients (Munro, 2005). The data analyses were performed using SPSS Statistics v.27 (IBM Corporation, 2020) and Jamovi (Jamovi Project, 2023) for descriptive analysis, R Core Team (2021) for discriminant and convergent validity, and JASP (2024) version 0.19 for CFA and correlation analysis.

Results

Descriptive statistics of the participants

The descriptive statistics for the measures used in the study were as follows. The Doomscrolling Scale (DSS) had a mean score of 30.75 out of 105 (SD = 19.10), the Satisfaction with Life Scale (SWLS) had a mean of 21.61 out of 35 (SD = 7.39), and the Bergen Social Media Addiction Scale (BSMAS) had a mean of 14.26 out of 30 (SD = 6.15). The three subscale scores on the DASS-21 were very similar: stress had a mean of 18.95 out of 21 (SD = 7.93), anxiety had a mean of 15.06 out of 21 (SD = 8.04), and depression had a mean of 16.23 out of 21 (SD = 8.23). Psychological distress (the summing the three DASS-21 subscales had a mean of 34.33 out of 63 (SD = 16.74) and the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) had a mean of 22.35 out of 30 (SD = 5.74). See Table S1 and S2 (Supplementary Materials) for further details.

Construct validity of the Doomscrolling Scale

When analyzing the distribution of items on the DSS, not all items were within the allowable limits regarding skewness and kurtosis (i.e., in the range ± 1). The assessment of multivariate normality was checked by computing Mardia's (1970) index (K) and examining skewness (min = 0.60, max = 2.13, in absolute value) and kurtosis (min = 0.33, max = 3.98, in absolute value). Mardia's value for the skewness was K = 120.85 ($p < 0.001$), and Mardia's value for kurtosis was K = 1.70 ($p < 0.001$), indicating a deviation from multivariate normality. This violation suggests the use of robust estimators (e.g., Mishra et al., 2019). Given these results, the diagonally least weighted squares estimator (DWLS) was used because it is more suitable when the data are non-normally distributed (Mishra et al., 2019). The results of the CFA were as follows: χ^2 (88) = 286.977, $p < 0.001$, CFI = 0.953, NNFI = 0.944. Concerning other fit measures, the RMSEA was 0.087 (with a 90% confidence interval ranging from 0.076 to 0.098). The SRMR was 0.035. Factor loadings for the items ranged from 0.613 to 0.891 (all significant at $p < 0.001$). Overall, the CFA results indicated a good fit to the model. Finally, all items were significantly ($p < 0.001$) and positively (min = 0.699; max = 0.806) correlated with the total DSS score.

Analysis of correlations, and convergent and discriminant validity of the Doomscrolling Scale

The results of the Spearman's rho (ρ) correlations (used when data are distributed in a non-normal way) demonstrated a significant positive correlation between scores on

Table 1 Spearman's ρ correlations among the main study measures

Variable	1	2	3	4	5	6
1. DSS	—					
2. BSMAS	0.575***	—				
3. Stress	0.550***	0.590***	—			
4. Anxiety	0.597***	0.576***	0.811***	—		
5. Depression	0.586***	0.642***	0.835***	0.808***	—	
6. SWLS	−0.384***	−0.698***	−0.323***	−0.433***	−0.564***	—
7. WEMWBS	−0.493***	−0.478***	−0.523***	−0.523***	−0.644***	0.950***

$p < 0.001$. *DSS* Doomscrolling Scale; *WEMWBS* Warwick-Edinburgh Mental Well-being Scale, *SWLS* Satisfaction With Life Scale; *BSMAS* Bergen Social Media Addiction Scale

the DSS and (i) BSMAS ($\rho = 0.575$), (ii) stress ($\rho = 0.550$), (iii) anxiety ($\rho = 0.597$), and (iv) depression ($\rho = 0.586$) (DASS-21 subscales). This indicated that higher levels of doomscrolling were associated with problematic social media use (PSMU), as well as elevated levels of stress, anxiety, and depression. The positive correlations between the BSMAS and the psychological distress variables ($\rho = 0.590$ for stress, $\rho = 0.576$ for anxiety, and $\rho = 0.642$ for depression) indicated that problematic social media use was associated with an increase in these negative psychological mood states.

Moreover, the DSS score had a significant negative correlation with scores on the SWLS ($\rho = -0.384$) and WEMWBS ($\rho = -0.493$), indicating that higher levels of doomscrolling were associated with lower life satisfaction and poorer mental well-being. Additionally, scores on the SWLS and WEMWBS were negatively correlated with each another ($\rho = 0.950$), showing higher mental well-being was associated with higher life satisfaction. Finally, the correlations between stress, anxiety, and depression were high and positive (stress and anxiety: $\rho = 0.811$; stress and depression: $\rho = 0.835$; anxiety and depression: $\rho = 0.808$). See Table 1 for further details.

Moreover, convergent validity and discriminant validity (using *R*'s "measureQ" package) were investigated in further detail through the construction of a model containing the psychometric instruments used (i.e., DSS, DASS–21, BSMAS, MWB, SWLS). The model exhibited adequate fit indices: RSMEA = 0.089 (CI 90% 0.076–0.083), SRMR = 0.071, CFI = 0.91, NNFI = 0.90 (see model code in Supplementary Materials). No item had a standardized factor loading significantly lower than 0.5 in convergent validity, with a composite reliability of 0.951, and an AVE of 0.658. Discriminant validity showed that no items had a secondary factor loading. Moreover, the heterotrait–monotrait ratio correlation matrix had no values that exceeded the threshold of 0.85. In addition, Table S3 (in the Supplementary Materials) shows that the value of squared correlation was not significantly higher than AVE (for the Doomscrolling Scale). Therefore, in light of the results of the correlations and the analysis of the model using the 'measureQ' function, convergent and discriminant validity were adequate. See Table S3 to S5 for details in Supplementary Materials.

Internal consistency

To assess the internal consistency of the DSS, various indices were employed, including Cronbach's α, McDonald's ω, and the Composite Reliability (CR). Cronbach's α was 0.963 (95% CI [0.956, 0.969]) and McDonald's ω was 0.963 (95% CI [0.956, 0.969]). The CR was 0.945. These results indicated that the DSS had excellent internal consistency.

Psychometric evaluation of the short Doomscrolling Scale

The four-item version of the DSS was also psychometrically evaluated. The results of the CFA indicated that: χ^2 (2) = 0.957, $p > 0.005$, CFI = 0.999, NNFI = 0.999. Concerning other fit measures, the RMSEA was 0.000 (with a 90% confidence interval ranging from 0.000 to 0.092). The SRMR was 0.032. Factor loadings for the items ranged from 0.716 to 0.888 (all significant at $p < 0.001$). Overall, the CFA results indicated a good fit to the model. All items were significantly ($p < 0.001$), high (min = 0.831; max = 0.883, i.e., > 0.50) and positively correlated with the total score DSS short version score. With regards to its internal consistency, Cronbach's α was 0.865 (95% CI [0.838, 0.889]) and McDonald's ω was 0.862 (95% CI [0.836, 0.887]). The CR was 0.873. These results indicated that the short version of DSS had very good internal consistency.

Discussion

The primary objective of the present study was to translate the English version of the Doomscrolling Scale (DSS) into Italian and to evaluate its psychometric properties. This involved examining the validity and reliability of the Italian DSS. The findings from the confirmatory factor analysis (CFA) confirmed a single-factor structure (supporting H_1), and aligned with the psychometric results of previous research which reported a uni-dimensional structure (Satici

et al., 2023; Sharma et al., 2022). Consistent with the latest psychometric standards (Cheung et al., 2024), the reliability of the DSS was found to be excellent. The present study makes a significant contribution to the literature by offering robust evidence for the convergent and discriminant validity of the translated Italian version of the DSS. More specifically, the Average Variance Extracted (AVE) scores surpassed the recommended threshold of 0.50, indicating that the items within the scale effectively represented the construct of doomscrolling. This high AVE demonstrated strong convergent validity because it reflects a strong correlation between items assessing the same factor.

Additionally, the observed heterotrait-monotrait (HTMT) ratio values were below 0.85, indicating that the DSS assesses a distinct factor. The strength of the discriminant validity was further confirmed by the absence of cross-loading among items, reinforcing the idea that the items distinctly represent the doomscrolling construct. Moreover, the squared correlation coefficient was not significantly higher than the AVE. The fact that the squared correlation coefficient did not significantly exceed the AVE of the DSS construct suggests that the construct of doomscrolling explained more of its own variance than the variance shared with other constructs (e.g., PSMU, SWL, etc.). Therefore, given these results, it can be concluded that the construct of the Doomscrolling Scale is sufficiently distinct from the other measures, which consequently assess different constructs, as is desired in a good model (Cheung et al., 2024). Lastly, the correlation analysis supported both the convergent and discriminant validity of the scale.

The correlations between doomscrolling (DSS), problematic social media use (PSMU), satisfaction with life (SWL), and mental well-being (MWB) showed significant patterns regarding their interactions and potential associations with psychological health. The analysis demonstrated a significant positive correlation between scores on the DSS and scores on both the BSMAS (supporting H_4) and psychological distress variables on the DASS-21 (i.e., stress, anxiety, and depression, supporting H_2). This suggests that elevated levels of doomscrolling are strongly associated with problematic social media use, as well as greater stress, anxiety, and depression. In essence, individuals who engage more in doomscrolling are more likely to experience psychological distress and display problematic patterns of social media engagement, in line with previous studies (Anand et al., 2022; Satici et al., 2023; Sharma et al., 2022). Moreover, the significant negative correlation between scores on the DSS and both SWLS and WEMWBS emphasizes the potential detrimental effects of doomscrolling on overall well-being (supporting H_3). Higher levels of doomscrolling were associated with lower satisfaction with life and poorer mental well-being. This suggests that individuals who engage more frequently in doomscrolling tend to report lower levels of life satisfaction and poorer mental health, further highlighting the negative association of this behavior with both emotional and psychological well-being in line with previous studies (Satici et al., 2023; Shabahang et al., 2023; Sharma et al., 2022) and supporting H_2, H_3 and H_4. The abbreviated DSS also demonstrated satisfactory psychometric characteristics and reliability, supporting H_1 and aligning with the other validation studies of the four-item version (e.g., Satici et al., 2023; Sharma et al., 2022). Taken together, these findings indicate that the Italian version of the DSS is a valid and reliable instrument, which effectively assesses the intended psychological construct (i.e., doomscrolling).

Limitations and future research

While the findings of the present study are encouraging, there are several limitations that should be acknowledged when interpreting the results. First, the participant pool was drawn from a convenience sample of the Italian population (over 70% female), and none of the participants had formal diagnoses of clinical conditions such as anxiety, stress, or depression. This limitation may restrict the generalizability of the findings to broader or more clinically diverse populations. Second, although the sample size was sufficient as outlined in various guidelines (e.g., Kline, 2023; Kyriazos, 2018), the modest sample size may have impacted the statistical power and precision of the confirmatory factor analysis. Future studies would benefit from recruiting larger samples to ensure more robust evaluations of the psychometric properties of the instrument. Another potential issue was the influence of social desirability bias, which could have affected the participants' responses, thereby introducing inaccuracies in the collected data. Moreover, the cross-sectional design of the study poses additional limitations because it does not allow for the assessment of changes over time or the establishment of causal relationships between the variables. Future research should consider a longitudinal approach to better understand how the relationships between doomscrolling, psychological well-being, and social media use evolve over time.

A further potential limitation was the analysis of the short four-item version of the DSS. Despite exhibiting good psychometric properties (i.e., CFA and reliability), further verification is required. More specifically, future studies utilizing a different sample should undertake a detailed analysis of the convergent and discriminant validity of the short version of the DSS. This would enhance the robustness of the psychometric analyses conducted in the present study.

Future research should also focus on addressing the aforementioned limitations by utilizing larger and more representative samples of the Italian population to confirm the

initial findings. Incorporating nationally representative samples with more balanced gender distribution would enhance the generalizability of the results beyond the specific sample used in the present study. Additionally, employing longitudinal research designs would provide a more comprehensive understanding of the psychometric properties of the DSS over time, allowing for stronger validation of the factorial structure proposed and offering insights into the stability and evolution of the relationships between doomscrolling and psychological well-being.

Further studies could also explore how the DSS performs across different subgroups, such as individuals with clinical conditions such as anxiety or depression, to assess its relevance and accuracy among these populations. Examining the scale's predictive validity in relation to mental health outcomes would offer deeper insights into its practical implications. Cross-cultural comparisons, involving translations of the DSS into other languages would be beneficial in determining whether the scale maintains its psychometric robustness across different cultural contexts. Lastly, future research should consider incorporating experimental designs or intervention-based studies to examine whether reducing doomscrolling behaviors can lead to improvements in psychological well-being, providing stronger evidence of causality in the relationships identified.

Conclusion

Despite the limitations, the present study's findings demonstrate that the Italian version of the Doomscrolling Scale is a psychometrically robust instrument, characterized by a well-defined factorial structure and excellent validity and reliability. This makes the instrument a valuable resource for investigating the behaviors and psychological mechanisms that underlie doomscrolling, especially its potential link to mental health issues such as stress, anxiety, and depression. Given the increasing prevalence of doomscrolling in contemporary society, the DSS offers a precise and reliable way to assess and understand this behavior within the Italian population.

The DSS can play a crucial role in advancing research by enabling a better understanding of the cognitive and emotional patterns associated with excessive exposure to negative online content. This, in turn, can help researchers and clinicians develop targeted interventions and prevention programs to reduce the harmful effects of doomscrolling on mental health. Such programs may focus on promoting healthier digital habits, increasing awareness of the psychological risks of excessive doomscrolling, and equipping individuals with strategies to manage their online consumption more effectively.

Moreover, the insights gained from using the DSS could have wider public health implications. By addressing the psychological drivers underlying doomscrolling, interventions informed by the DSS could contribute to improving mental well-being on a broader scale, particularly as digital media becomes more ingrained in daily life. Reducing the psychological burden of doomscrolling may lead to a reduction in the overall prevalence of anxiety, depression, and stress within the Italian population, ultimately enhancing both individual and societal well-being. Therefore, the DSS serves not only as a research instrument but also as a foundation for meaningful mental health interventions that could positively impact public health outcomes in the long-term.

Appendix 1. Italia version of Doomscrolling Scale

1 (*fortemente in disaccordo*) − 7 (*fortemente d'accordo*)

1. Sento, sempre più spesso, la necessità di cercare notizie negative sui social media. *.
2. Quando leggo notizie negative sui social media, perdo la cognizione del tempo, rimanendo connesso più tempo del previsto. *.
3. Aggiorno costantemente i miei feed/aggiornamenti di notizie per vedere se è successo qualcosa di spiacevole nel mondo.
4. Rimango sveglio fino a tarda notte per cercare di trovare altre notizie negative.
5. Leggere notizie negative sui social media è ormai un'abitudine.
6. Quando sono online, mi sento teso come se stesse per accadere qualcosa di brutto.
7. Mi sento costantemente in preda al panico/all'ansia mentre navigo o faccio scroll sul mio dispositivo, leggendo notizie negative.
8. Controllo inconsapevolmente i miei feed/aggiornamenti di notizie alla ricerca di cattive notizie.
9. Anche se il mio newsfeed/aggiornamenti indica che sono al passo con le novità, continuo a scorrere alla ricerca di notizie negative.
10. Mi ritrovo a consultare continuamente notizie negative. *.
11. Controllo i social media al mattino per vedere quali cose brutte/negative sono successe nel mondo.
12. Mi sento come se fossi dipendente dalle notizie negative. *.
13. Le mie ricerche sui social media probabilmente rendono i miei feed/aggiornamenti di notizie più negativi.
14. Sono terrorizzato/spaventato da ciò che vedo sui social media, ma non riesco a distogliere lo sguardo.

15. È difficile smettere di leggere le notizie negative sui social media.

Nota: Gli asterischi * si riferiscono alla versione breve della DSS (gli item da utilizzare).

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Declarations

Ethics approval and consent to participate The research was conducted according to the Declaration of Helsinki for medical research involving human participants and was approved by University Niccolò Cusano in Rome Ethical Committee, Italy. All participants gave their online consent to participate in the study. The identity of the participants was anonymous, and the data were stored in an encrypted online archive, accessible only to the authors of the present study. Informed consent was obtained from all participants involved in the study.

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Conflict of interest Given their role as Editorial Board members, Servidio Rocco, had no involvement in the peer-review of this article and had no access to information regarding its peer-review. All other authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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