

## Validity and reliability of the agentic steadfastness index

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Agentic steadfastness is a hitherto unarticulated and unmeasured construct, although clinicians may have drawn intuitively on it in anticipating clients' prognosis and anticipated responsiveness to adverse events. Following the conceptualisation and articulation of the agentic steadfastness construct and a measure thereof, the current study examined the validity and reliability of the agentic steadfastness index (ASI) among responding adult social media users ( $n = 511$ ). Results confirmed convergent validity between agentic steadfastness and closest related psychological constructs, which were resilience ( $r = .715$ ) and character strength ( $r = .704$ ). Its discriminant validity was observed with other related but notably distinct psychological constructs, which were anxiety ( $r = -.599$ ) and ego-strength ( $r = -.244$ ). Temporal stability was confirmed over a period of 6 months ( $r = .763$ ). The ASI showed good internal (Cronbach alpha = .937) and split-half reliability ( $r = .838$ ) and a low standard error of measurement of 7.57 points within a theoretical range of 190 points. These results suggest that the ASI is a valid and a reliable measure of agentic steadfastness. Equipped with the ASI, further research is enabled on agentic steadfastness as a psychotherapeutic target and its relations with various aspects of personality, prognosis and adversity.

**Keywords:** Agency; Strength; Assessment; Resilience; Positive psychology.

The problem of an unarticulated yet tacitly operating construct is not uncommon in the field of mental health (Henriques, 2013). One such construct is agentic steadfastness, on which clinicians may have drawn intuitively in anticipating clients' prognosis and their enduring steadfastness in facing potential adverse events. The construct was conceptualised and articulated by us as an enduring psychological feature that is an expression of personality and is constituted by taking action from an awareness and experience of inner security, steadiness, being anchored, having a meaningful past and future, acceptance, positive expectations, gratitude, self-trust and a sense of belonging even, but not exclusively so, when facing difficulties. This means agentic steadfastness was conceptualised not as a reaction to adversity, a defence mechanism, merely an inner awareness nor dependent upon introspective reflection, but rather as psychological foundation for being active and taking action including venturing and pursuing goals, spontaneous expression, caring, empathetic engagement and growing responsively within relationships.

The articulation of agentic steadfastness as a tacitly operating construct in clinical practice is important to do, for unarticulated constructs cannot be examined, measured or securely used in research or clinical practice (Clark & Watson, 2019). In contrast, well-conceptualised and clearly articulated constructs have been important for clinical practice by which researchers and clinicians may account for the specific aspect that is of concern amidst the complex array of personality features, emotions, behaviour, thoughts and experiences of individuals in their daily functioning (Achenbach et al., 2017). Research may focus on identifying and clarifying constructs and construct boundaries, determine which constructs relate to other constructs and as a basis for theorising functional relationships between systems of constructs (Stenner et al., 2022). Clinicians use these findings on constructs to inform policy, for commissioning and developing services, creating treatment guidelines, anticipate response and conducting clinical practice (Lee et al., 2012). In addition, clearly articulated and conceptualised constructs help to inform, for example, industrial psychologists on

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whom to select, train and promote in certain positions or careers in organisations (Jenkins & Griffith, 2005).

Although hitherto an unarticulated construct, agentive steadfastness has been implied to some extent in mental health theory. This is seen in constructs related to agentive steadfastness, specifically psychological resilience, character strength and *geborgenheit*.

Psychological resilience concerns qualities of one's personality that allow individuals and communities to grow, even thrive and bounce back in the face of adversity (Campbell-Sills & Stein, 2007) and refers to the capacity to withstand exceptional stresses and demands without developing stress-related problems (Carr, 2011; Hoegl & Hartmann, 2021). Agentive steadfastness is conceptually related to psychological resilience in that bouncing back is an action (in being agentive), as is it about standing steadfast in the face of adversity. Notwithstanding these similarities, conceptual differences are that agentive steadfastness pertains without reference to adversity. Moreover, some aspects of psychological resilience, particularly religion, leadership, high standards, tenacity, tolerance of negative affect, strengthening effect of stress, control and spiritual influences are outside the conceptual scope of agentive steadfastness.

Character strength is described as positive and morally valued traits of one's personality that are relatively stable over time and generalised across different situations but are not necessarily fixed in immutable genetic features. Accordingly, Peterson et al. (2006) classify six virtues that can be achieved through character strengths: (a) Wisdom can be achieved through the character strengths of creativity, curiosity, open-mindedness, love of learning and perspective; (b) courage can be achieved through the character strengths of bravery, persistence, honesty and zest; (c) humanity can be achieved through the character strengths of love, kindness and social intelligence; (d) justice can be achieved through the character strengths of teamwork, fairness and leadership; (e) temperance can be achieved through the character strengths of forgiveness, modesty, prudence and self-regulation; and (f) transcendence can be achieved through the character strengths of appreciation of beauty and excellence, gratitude, hope, humour and spirituality. At face value, agentive steadfastness may be considered a character strength, but it does not feature among the character strengths as conceptualised by Peterson et al. (2006). Yet, some of the above-mentioned character strengths (e.g., persistence, self-regulation) are seemingly related to agentive steadfastness.

While one may have some appreciation of one's own psychological resilience and character strengths, one's ego-strength is not accessible to oneself (or in one's own consciousness), for it is conceptualised as a set of subconscious psychological abilities and processes applied to resolve intrapsychic subconscious conflicts and environmental demands (Lee et al., 2021). Agentive

steadfastness was not conceptualised in terms of resolving subconscious conflicting needs and defending subconsciously against environmental demands. In contrast, agentive steadfastness was conceptualised as neither necessarily defensive nor subconscious. Thus, although ego-strength may be thought of as a kind of psychological strength alongside character strength, it was theoretically anticipated to be distinct from agentive steadfastness.

The Germanic concept of *geborgenheit* is considered an essential component of our existence as human beings (Bollnow, 1961), described as a form of existential security without anxiety and regarded as an existential experience of finding and fitting into one's place in the world; of being cared for and comforted; and of healing and happiness (Cilliers, 2017). For this reason, *geborgenheit* may be described as the combination of security, warmth, protection, trust, love and sense of belonging that is an essential human experience. This concept informed in part the construct agentive steadfastness, in being an inner awareness or sense of security, protection, safety, being loved, accepted and sense of belonging. *Geborgenheit* differs from agentive steadfastness in that it might be transient or lasting, whereas agentive steadfastness was conceptualised as enduring.

The constructs of psychological resilience, character strengths and *geborgenheit* conceptually capture some core commonality in the construct agentive steadfastness, but nonetheless do so only partially. The construct agentive steadfastness resulted from an extensive process of construct conceptualisation and iterative description (details are available on request). Inclusive and exclusive psychological demarcations of a candidate construct had first been identified, after which an apt label for the construct was formulated. The following constructs were the conceptual landscape that informed the conceptualisation of agentive steadfastness in so far as they were connected or an expression of agentive steadfastness: empathy, accountability, being well founded in personal values, inner resourcefulness, trust, freedom from restrictedness, self-knowledge, insight, oversight, self-acceptance, continuity, consistency, well-grounded, well-anchored, interdependence, inner-strength, historically rooted, autonomy, gratitude, appreciation, hope, optimism, psychological flexibility, adaptability, creativity, spontaneity, openness, love, intimacy, growing from emotional experience, sense of inner safety and security, sense of belonging, sense of purpose, drive, motivation, action predictability, forgiveness.

Using the literature on each of these constructs as potential expressions of agentive steadfastness, we developed the agentive steadfastness index (ASI). Potential indicators of agentive steadfastness were identified and categorised based on conceptual similarities, resulting in 18 categories (i.e., continuity and consistency, hope and optimism, adaptability, openness and flexibility,

spontaneity, drive and motivation, sense of purpose, insight and empathy, growing from emotional experiences, sense of inner safety and security, love and intimacy, sense of belonging, appreciation and gratitude, accountability, creativity, inner strength, action predictability and forgiveness). For each category, items were freshly articulated with an emphasis on “agentive”—a guiding question in articulating items was “what will agentive steadfastness look like *in action*?” rather than an item soliciting merely an inner awareness or be dependent on introspective reflection. This process resulted in 27 items, each in Likert-scale format comprising the ASI. The ASI captures how agentive steadfastness finds expression in one’s life and one’s subjective experience of, and orientation within, agentive steadfastness. Being so derived conceptually, the ASI needed to be tested empirically for measuring that which it was supposed to measure (i.e., its validity) and measuring so consistently (i.e., its reliability).

### Study aim

The study examined the validity and the reliability of the ASI in measuring agentive steadfastness among adult social media respondents. More specifically, the study examined the ASI’s convergent and discriminant validity, temporal stability (or endurance validity), internal consistency, split-half reliability, structural reliability, the standard error of measurement (SEM), and its association with age, gender, marital status, highest level of education and employment status.

## METHODS

### Participants and procedures

This study deployed a quantitative research design in data collection, analysis and interpretation. This study followed both a cross-sectional (i.e., to examine the validity and reliability of the ASI) and a longitudinal design (i.e., to examine agentive steadfastness as an enduring trait over a period of 6 months). The population for this study was defined as active users of social media platforms, Facebook, Instagram and Twitter, who were 18 years and older from the general public, and able to participate in the study in English. Social media platforms were used for snowball recruitment, utilising the inherent peer network structure of multi-media platforms by requesting participants to recruit their friends to participate in the study. The sample size was initially set at 500 translating to 18.5 participants per item of the ASI, thus exceeding the guide of five per item almost four times (Anthoine et al., 2014). Data were collected using a composite questionnaire on Qualtrics that captured data for all variables and measuring instruments from November 2020 to April 2021.

The longitudinal data were collected from May 2021 to October 2021, with the software allowing access to any one participant no earlier than 6 months after initial participation of those participants who indicated during the initial participation that they would be willing to retake the ASI after 6 months. All procedures were ethically approved by the legally accredited Faculty of Health Sciences Research Ethics Committee of the University of Pretoria, South Africa.

### Variables and measures

Descriptive variables were recorded for participants’ age, gender, marital status, highest level of education and employment status.

The ASI is a 27-item measure enquiring about each item pertaining during the preceding 6 months—see Supporting Information. Self-reported ratings are recorded on a continuous interactive sliding scale comprising six unmarked points in between “never” to “always,” which that are scored from 0 to 7. Items 6 and 22 are reverse coded. Higher total scores indicate more agentive steadfastness.

For examining convergent validity, participants completed measures of resilience and character strength. The abridged Connor-Davidson Resilience Scale is a 10-item measure (CD-RISC-10) rated on a 0 (“not true at all”) to 4 (“true nearly all the time”) scale, with higher total scores reflecting more resilience. The CD-RISC-10 evidenced acceptable psychometric properties including good internal reliability ( $\alpha = .85$ ) (Campbell-Sills & Stein, 2007).

The Global Assessment of Character Strengths-24 (GACS-24) (McGrath, 2017) is a measurement of character strengths. It consists of 24 items assessing the 24-character strengths in the Values in Action classification assigned to one of six universal virtues (Park & Peterson, 2006): (a) Wisdom and knowledge (i.e., include the strengths of creativity; curiosity; open-mindedness; love of learning; and perspective); (b) courage (i.e., includes bravery; persistence; honesty; and zest); (c) humanity (i.e., includes love; kindness; and social intelligence); (d) justice (i.e., includes teamwork; fairness; and leadership); (e) temperance (i.e., includes forgiveness; modesty; prudence; and self-regulation); and (f) transcendence (i.e., includes appreciation of beauty and excellence; gratitude; hope; humour; and spirituality) (Park & Peterson, 2006; Peterson et al., 2006). The GACS-24 is single item self-report measure of the 24-character strengths rated on a 0 (“very strongly disagree”) to 7 (“very strongly agree”) scale with higher scores reflecting character strengths. The GACS-24 evidenced reliable psychometric properties including an internal consistency (estimated using communalities) of .78 (McGrath, 2017), and a Cronbach alpha of .95 (Umucu et al., 2021).

For examining discriminant validity, participants completed measures of anxiety and ego-strength. The Hamilton Anxiety Scale (HAM-A-14) (Hamilton, 1959) is a 14-item measure rated on a 0 (“not present”) to 4 (“very severe”) scale for each item, reflecting both psychological (i.e., mental agitation and distress) and somatic anxiety (i.e., physical manifestations of anxiety). Although the HAM-A-14 is usually a clinician rating scale, it is also available and used as a self-report measure (Thompson, 2015). The HAM-A-14 evidenced good psychometric properties including internal reliability ( $\alpha = .893$ ) (Kummer et al., 2010).

The Psychosocial Inventory of Ego Strengths-32 (PIES-32) is a measure of ego-strengths relative to the specific stage of psychosocial development according to Erikson’s (1968) theory and an individual’s overall level of ego-strength (Markstrom et al., 1997). Erikson’s ego-strengths comprise (a) hope (i.e., “When I think about the future, I feel optimistic”); (b) will (i.e., “In many ways, I have control over my future”); (c) purpose (i.e., “When I think of my future, I see a definite direction for my life”); (d) competence (i.e., “I know I have skills to carry out various tasks and responsibilities important to me”); (e) fidelity (i.e., “I do not pretend to be something that I am not”); (f) love (i.e., “I have experienced feelings of love with someone outside of my family”); (g) care (i.e., “When I know someone is having a difficult time, I really feel concerned about them”); and (h) wisdom (i.e., “I feel okay with the way I have handled my life so far”). The PIES-32 consists of 32 items rated on a 1 (“does not describe me well”) to 5 (“describes me well”) scale, with higher total scores expressing psychologically mature and well-adjusted individuals. The PIES-32 evidenced good internal reliability ( $\alpha = .91$ ) (Markstrom et al., 1997).

## Statistical analyses

The association between the ASI and gender was examined using point biserial correlation testing. As age data did not follow a normal distribution as indicated by the Kolmogorov–Smirnov (with Lilliefors significance correction) and Shapiro–Wilk tests, Kendall’s tau and Spearman’s rho correlation coefficients were calculated. Associations of the ASI with marital status, highest level of education and employment status were examined using analysis of variance with Bonferroni corrected post hoc analyses, and by calculating effect sizes for statistically significant results.

To examine convergent validity, Pearson’s correlation coefficients were calculated to determine the extent to which the ASI converged with well-established measuring instruments (Anthoine et al., 2014), since criterion-related validity could not be tested in the absence of a gold standard (Dlagnekova et al., 2021). The

instruments for which convergence would be expected were the CD-RISC-10 and the GACS-24, hypothesised to correlate positively and at least moderately with the ASI. To examine discriminant validity, analyses were performed to determine whether measuring instruments that were supposed to be distinct were actually distinct or, when overlapping, nonetheless statistically significantly divergent. To this end, Pearson’s correlation coefficients were calculated between the ASI and each of the HAM-A-14 and the PIES-32, hypothesised to be no more than weak or negative. Moreover, paired *t* tests were performed to compare the ASI to related, but supposedly distinct instruments being the CD-RISC-10, GACS-24, PIES-32 and HAM-A-14.

Temporal stability was examined to determine the extent to which the ASI measures an enduring trait over a 6-month period. As data did not follow a normal distribution, non-parametric Spearman’s rho correlation coefficients were calculated between the total scores obtained on the ASI 6 months apart as well as for each individual item.

To examine internal reliability of the ASI, the Cronbach alpha coefficient was calculated as a measure of the internal consistency among the items (Anthoine et al., 2014). For testing split-half reliability, items were split into two parts namely 1–14 for the ASI part I and items 15–27 for the ASI part II. The two parts were compared by performing a Spearman’s rank correlation test. The Spearman-Brown coefficient, the Guttman split-half coefficient and the Guttman’s lambda were calculated as well as Cronbach alpha for each part. Structural reliability was examined through an exploratory factor analysis and principal axis factoring for which Oblimin rotation with Kaiser normalisation was applied and a threshold Eigenvalue of 1.0 was used. To assess the homogeneity of the ASI, the SEM was calculated as the product of the *SD* and the square root of 1 minus the reliability coefficient.

The probability threshold for a type I error was set at 5%. The strength of correlation coefficients was defined as follows:  $r < .20$  is negligible;  $.20 < r < .40$  is weak;  $.40 < r < .60$  is moderate;  $.60 < r < .80$  is strong; and  $r > .80$  is very strong. Cronbach alpha coefficients of  $\geq .7$  were considered as good. SPSS version 27 was used for the analyses.

## RESULTS

### Descriptive features of participants and associations with the ASI

The descriptive features of the 511 participants who completed the composite questionnaire and their associations with the ASI are presented in Table 1. The majority of participants were female (89.4%) and obtained a tertiary qualification (80.9%). The relationship status was identified as married or in a committed relationship for longer



**TABLE 1**  
Descriptive features and associations with the ASI

Variable ( <i>n</i> = 511)	Descriptive features		Statistical associations with the ASI	
	<i>N</i>	%	Test statistic	Strength and/or probability
Age	47.19 (SD = 13.837)	—	$r = .208; \tau = .138$	Weak ( $p < .001$ ); negligible ( $p < .001$ )
Gender			$r = -.061$	Weak ( $p = .168$ )
Male	54	10.6%	—	—
Female	457	89.4%	—	—
Marital status			$f = 2.063$	$p = .038$
Highest level of education			$f = 6.241$	$p < .001$
Secondary	98	19.2%	Non-graduate	$p = .781$
			Graduate	$p < .001$
			Post-graduate	$p = .384$
Tertiary	99	19.4%	Secondary	$p = .781$
			Graduate	$p = .027$
			Post-graduate	$p = 1.000$
Graduate	143	28.0%	Secondary	$p < .001$
			Non-graduate	$p = .027$
			Post-graduate	$p = .248$
Post-graduate	171	33.5%	Secondary	$p = .384$
			Non-graduate	$p = 1.000$
			Graduate	$p = .248$
Employment status			$f = 5.830$	$p < .001$
Unemployed	74	14.5%	Employed	$p = .001$
			Pensioner	$p < .001$
			Self-employed	$p < .001$
Employed	232	45.4%	Unemployed	$p = .001$
Student	19	3.7%	Number of participants precludes sensible testing	
Volunteer	5	1.0%	Number of participants precludes sensible testing	
Pensioner	61	11.9%	Unemployed	$p < .001$
Self-employed	120	23.5%	Unemployed	$p < .001$

**TABLE 2**  
Descriptive features of the measures

Measures ( <i>n</i> = 511)	Mean	95% Confidence interval		Median	95% Confidence interval	
		Lower bound	Upper bound		Lower bound	Upper bound
ASI	120.74	118.10	123.45	124.0	120.0	128.0
CD-RISC-10	28.64	28.06	29.24	29.0	28.03	30.0
GACS-24	173.40	171.86	174.87	175.0	173.0	176.0
PIES-32	85.43	84.74	86.15	85.0	84.0	86.0
HAM-A-14	15.93	15.05	16.93	14.0	13.0	15.0

than 6 months among 54.6% of participants, 17% were never married, 21.3% were separated or divorced, 5.9% were widowed and 1.2% were not currently in a committed relationship for longer than 6 months.

Age correlated negligibly to weakly with the ASI. No statistically significant association with gender was found. Although a statistically significant association between the ASI and marital status was found ( $f = 2.063$ ;  $p = .038$ ), no significant associations with the specific marital status categories were inferred from the post hoc testing. A significant association of the ASI with highest level of education across all categories was found (see

Table 1), but the effect sizes were very small ( $\eta^2 = .036$ , 95% confidence interval [CI] = .008 to .068;  $\omega^2 = .030$ , 95% CI = .002 to .063;  $\epsilon^2 = .030$ , 95% CI = .002 to .062). Similarly for employment status (see Table 4), for which the significant association across categories had very small effect sizes ( $\eta^2 = .055$ , 95% CI = .016 to .089;  $\omega^2 = .045$ , 95% CI = .007 to .080;  $\epsilon^2 = .045$ , 95% CI = .006 to .080).

The means, medians and their 95% CIs for the measuring instruments are reported in Table 2.

**TABLE 3**  
Pearson's correlation coefficients between the ASI, CD-RISC-10 and GACS-24

Measures (n = 511)		ASI	CD-RISC-10	GACS-24
ASI	Pearson's correlation coefficient	1	.715	.704
	95% Confidence interval	Lower bound	.669	.6530
		Upper bound	.756	.750
CD-RISC-10	Pearson's correlation coefficient	.715	1	.737
	95% Confidence interval	Lower bound	.669	.687
		Upper bound	.756	.779
GACS-24	Pearson's correlation coefficient	.704	.737	1
	95% Confidence interval	Lower bound	.653	.687
		Upper bound	.750	.779

**TABLE 4**  
Pearson's correlations of the ASI with the PIES-32 and the HAM-A-14

Measure (n = 511)		ASI	PIES-32	HAM-A-14
ASI	Pearson's correlation coefficient	1	-.244	-.599
	95% Confidence interval	Lower bound	-.347	-.658
		Upper bound	-.142	-.537
PIES-32	Pearson's correlation coefficient	-.244	1	.370
	95% Confidence interval	Lower bound	-.347	.291
		Upper bound	-.142	.447
HAM-A-14	Pearson's correlation coefficient	-.599	.370	1
	95% Confidence interval	Lower bound	-.658	.291
		Upper bound	-.537	.447

### Validity of the ASI

Results of the convergent validity analyses presented in Table 3 showed a strong positive correlation of the ASI with resilience on the CD-RISC-10 and character strength on the GACS-24. Results of the discriminant validity analyses presented in Tables 4 and 5 showed that the ASI was weakly and negatively correlated with ego-strength on the PIES-32, and moderately and negatively correlated with anxiety on the HAM-A-14. The ASI was statistically significantly different from ego-strength on the PIES-32, anxiety on the HAM-A-14, character strength on the GACS-24 and resilience on the CD-RISC-10.

In the endurance validity or temporal stability analysis, longitudinal data from 180 participants who responded 6 months after their initial participation yielded a strong Spearman's rho correlation of .763 between the total scores of the ASI 6 months apart. The strength of the Spearman's rho correlations for each of the 27 ASI items 6 months apart were strong for six items, moderate for 17 items and weak but more than .32 for four items. These are shown in Table 6 in which items are ranked by their correlation coefficients from high to low, reflecting the strength of the correlations.

### Reliability of the ASI

The internal reliability analysis yielded a Cronbach alpha of .937, which indicated an excellent internal consistency

among the 27 ASI items. The split-half reliability analyses between two parts of the ASI are presented in Table 7. These yielded an excellent Spearman's correlation coefficient ( $r = .838$ ) and very good Cronbach alpha values for each part of the ASI (i.e., .890 and .880). The Spearman-Brown and the Guttman split-half correlations were both very strong at .912. Guttman's lambda values for parts I and II of the ASI were more than .90, indicating that more than 90% of the variance was due to a true score. The SEM for the ASI was calculated as 7.57 points, within a theoretical range of 190 points.

The exploratory factor analysis and principal axis factoring yielded a final three-factor structure for 22 of the items that explained 49.31% of the cumulative variance, which is usually taken as a good outcome for a new instrument's reliability testing (Mvududu & Sink, 2013). With rotation converging after seven iterations, the three factors explained, respectively, 42.03%, 4.12% and 3.16% of the variance, and were labelled as stably forwards: Secure and grateful from past to future; inner- and interrelatedness: open and sensitive outwards; and agentively shaping life by goals. The factor loadings for each item are presented in Table 8.

The final three-factor model was preceded by obtaining a Kaiser-Meyer-Olkin value for sampling adequacy of .945 (thus higher than the required .7) and performing a Bartlett's test of sphericity (approximate  $\chi^2 = 6000.05$ ;  $df = 231$ ;  $p < .001$ ) that indicated that variables correlated

**TABLE 5**  
Statistical differences between the ASI and each of the PIES-32, HAM-A-14, CD-RISC 10 and the GACS-24

Measure in comparison with the ASI	Correlation coefficient	Difference between means	95% Confidence interval of the difference between means		T-value df = 510	Significance (two-tailed)
			Lower bound	Upper bound		
PIES-32	-.244	35.30	32.43	38.18	24.13	$p < .001$
HAM-A-14	-.599	104.80	101.54	108.10	62.98	$p < .001$
CD-RISC-10	.715	92.10	89.85	94.34	80.46	$p < .001$
GACS-24	.704	52.66	54.55	50.76	54.57	$p < .001$

**TABLE 6**  
Ranked correlation coefficients for the ASI items 6 months apart

Item of the ASI 6 months apart ranked by the correlation coefficient (n = 180)	Spearman's rho correlation testing			Strength of the correlation
	Correlation coefficient	95% Confidence interval		
		Lower bound	Upper bound	
18. I have been experiencing for some time now that I belong.	.645	.525	.742	Strong
19. As of late I have been amazed about the beauty in my environment.	.637	.533	.728	Strong
13. I am okay even when I experience difficulties in my life.	.631	.516	.727	Strong
11. I have been engaging others on their feelings.	.626	.528	.713	Strong
26. I know what my probable actions will be in future.	.605	.491	.700	Strong
25. I trust myself.	.600	.483	.709	Strong
8. I have been actively pursuing my goals.	.593	.488	.694	Moderate
14. I feel secure to venture.	.588	.444	.666	Moderate
9. I have been experiencing my life as purposeful.	.580	.457	.685	Moderate
16. I have felt well-anchored for some time now.	.573	.456	.677	Moderate
24. I have been pursuing various ideas to resolve problems and challenges.	.553	.439	.661	Moderate
1. Things have come together sensibly in my life.	.550	.430	.658	Moderate
2. I expect that things will work out the best for me.	.541	.410	.660	Moderate
21. I have been making my own decisions freely.	.534	.417	.645	Moderate
7. I have been actively shaping my life.	.530	.399	.639	Moderate
4. I have been expressing myself spontaneously when I wanted to.	.529	.414	.639	Moderate
20. I experience profound gratitude in my life.	.504	.383	.617	Moderate
12. I have grown in response to adversity.	.493	.373	.604	Moderate
10. I see purpose in my immediate future.	.488	.355	.610	Moderate
5. I have been using perspectives different from mine to shape my perspective further.	.474	.347	.589	Moderate
3. I have come to embrace new situations in my life.	.456	.324	.572	Moderate
22. I feel trapped. <sup>a</sup>	.455	.300	.577	Moderate
23. I have been venturing into new experiences.	.405	.250	.531	Moderate
6. I have to be in control most of the time. <sup>a</sup>	.395	.251	.532	Weak
27. I have been responding towards unfairness against me in a forgiving way.	.385	.223	.524	Weak
15. I have felt well-grounded to care for what others want.	.341	.196	.480	Weak
17. I have been reaching out to others for no other reason than caring about them.	.321	.183	.444	Weak

<sup>a</sup>Reverse coded.

highly enough to provide a reasonable basis for performing a factor analysis.

Although the first factor was stronger in the preceding exploratory models, the final model did not include five of the initial 27 items. The reasons were that a low initial communality of .166 was obtained for item 6

("I have to be in control most of the time"), and item 15 ("I have felt well-grounded to care for what others want") cross-loaded on two factors although the loading values were acceptable ranging between .310 and .384. Similarly, item 4 ("I have been expressing myself spontaneously when I wanted to") and item 27 ("I have been

**TABLE 7**  
Consistency and correlation between part I and part II of the ASI

<i>Kind of coefficient</i>	<i>Part of ASI</i>	<i>Coefficient</i>
Cronbach alpha	Part I: <i>n</i> of items = 14 <sup>a</sup>	.890
	Part II: <i>n</i> of items = 13 <sup>b</sup>	.880
Spearman's correlation coefficient		.838
Spearman-Brown coefficient	Equal length	.912
	Unequal length	.912
Guttman split-half coefficient		.912
Guttman's lambda for parts I and II of the ASI		
Lambda 1		.902
Lambda 2		.940
Lambda 3		.937
Lambda 4		.912
Lambda 5		.922
Lambda 6		.951

<sup>a</sup>For items 1 to 14. <sup>b</sup>For items 15 to 27.

**TABLE 8**  
Factor loadings for a principal axis three-factor model

<i>Factor</i>	<i>Item</i>	<i>Factor loading</i>			<i>Communalities after extraction</i>
		<i>1</i>	<i>2</i>	<i>3</i>	
Factor I: Stably forwards: Secure and grateful from past to future (15 items)	16. I have felt well-anchored for some time now.	<b>.816</b>	-.060	-.050	.647
	18. I have been experiencing for some time now that I belong.	<b>.791</b>	.010	.046	.608
	1. Things have come together sensibly in my life.	<b>.739</b>	-.076	-.052	.519
	22. I feel trapped. <sup>a</sup>	<b>.681</b>	-.191	-.020	.360
	13. I am okay even when I experience difficulties in my life.	<b>.637</b>	.185	.074	.539
	21. I have been making my own decisions freely.	<b>.624</b>	.020	-.075	.448
	10. I see purpose in my immediate future.	<b>.617</b>	.092	-.268	.669
	9. I have been experiencing my life as purposeful.	<b>.616</b>	.074	-.308	.694
	14. I feel secure to venture.	<b>.615</b>	.098	-.096	.518
	2. I expect that things will work out the best for me.	<b>.609</b>	.123	-.008	.477
	20. I experience profound gratitude in my life.	<b>.608</b>	.217	.158	.503
	25. I trust myself.	<b>.574</b>	.017	-.010	.345
	19. As of late I have been amazed by the beauty in my environment.	<b>.532</b>	.240	.159	.430
	3. I have come to embrace new situations in my life.	<b>.503</b>	.234	-.045	.469
	26. I know what my probable actions will be in future.	<b>.501</b>	.016	-.083	.345
Factor II: Inner- and interrelatedness: open and sensitive outwards (5 items)	11. I have been engaging others on their feelings.	-.131	<b>.722</b>	-.099	.459
	12. I have grown in response to adversity.	.217	<b>.541</b>	-.097	.524
	24. I have been pursuing various ideas to resolve problems and challenges.	.117	<b>.528</b>	-.131	.423
	5. I have been using perspectives different from mine to shape my perspective further.	.088	<b>.490</b>	-.044	.312
	17. I have been reaching out to others for no other reason than caring for them.	.159	<b>.469</b>	.156	.306
Factor III: Agentively shaping life by goals (2 items)	7. I have been actively shaping my life.	.193	.234	<b>-.601</b>	.658
	8. I have been actively pursuing my goals.	.273	.135	<b>-.586</b>	.641

Note: Extraction method: Principal axis factoring. Rotation method: Oblimin with Kaiser normalisation. <sup>a</sup>Reverse coded.



responding towards unfairness against me in a forgiving way”) cross-loaded on two factors with values between .263 and .307. Item 23 (“I have been venturing into new experiences”) cross-loaded on all three factors with respective values of .242, .373 and  $-.297$ .

The Cronbach alpha coefficient for the 22 items was .938, and for the three factors respectively .930, .751 and .806. The SEM for the 22 items was 6.56 points within a theoretical range of 155 points. The validity testing using the 22 items yielded Pearson’s correlation coefficients of .711, .690,  $-.249$ ,  $-.604$  and .760 for the CD-RISC-10, GACS-24, PIES-32, HAM-A-14 and the total 22-item score after 6 months, respectively. These coefficients differed very little from those yielded for the 27 items, with differences being .004, .014, .005, .005 and .003 respectively.

## DISCUSSION

Testing the ASI as a measure of agentive steadfastness yielded excellent psychometric properties, as evidenced by its convergent, discriminant and endurance validity, and its split-half reliability, internal consistency, structural reliability and homogeneity. The convergent validity of the ASI, in the absence of an existing gold standard for measuring agentive steadfastness, was found in its strong positive correlations with the closest related constructs of resilience (measured by the CD-RISC-10) and character strength (measured by the GACS-24) (Anthoine et al., 2014).

The strong positive correlation between the ASI and resilience reflects the shared domain of action and potential responsiveness to adversity. Unlike resilience, however, agentive steadfastness was conceptualised as not only relevant in or dependent on the context of a crisis, distress or adversity, but an enduring psychological feature that pertains without being confined to a defensive or other response to a(n) (adverse) situation. This differentiation was supported by the statistically significant difference found between the agentive steadfastness and resilience notwithstanding the theoretical convergence evidenced by the strong correlation.

The convergence between the ASI and character strength indicated by a strong positive correlation also reflects a shared conceptual domain. As for resilience, however, the ASI captured aspects outside the domain of character strength described by Peterson et al. (2006), which was empirically confirmed by finding statistically significant differences between the ASI and their measure of character strength.

The absence of statistically significant associations of the ASI, or being of negligible effect when significant, with groups defined by gender, marital status, level of education and employment status, suggests that ASI measured what it was supposed to measure across these

groups. This may be interpreted as the ASI showing concurrent validity but this interpretation is subject to the limitations considered below.

Discriminant validity of the ASI was found in its negative correlations and statistically significant differences with ego-strength and anxiety. This confirmed the theoretical anticipation that agentive steadfastness would be distinct from ego-strength and anxiety (Erikson, 1968; Van Staden et al., 2022). Unlike ego-strength, agentive steadfastness was not conceptualised as pertaining to the domain of subconscious psychological defences but as a psychological foundation for taking action. The strong negative correlation between the ASI and anxiety may suggest that agentive steadfastness constitutes the enduring opposite of anxiety, albeit only partially so. Inasmuch this is so, this finding may support agentive steadfastness as suitable psychotherapeutic pursuit in positive terms rather than the negative terms of anxiety as a problem or disorder (Carr, 2011; Peterson et al., 2006). The negative correlation, furthermore, suggests that the therapeutic strengthening of agentive steadfastness may ameliorate anxiety. It also suggests that agentive steadfastness may be a positive protective and/or prognostic factor that influences against anxiety’s negative influence on psychological functioning (Westerhof & Keyes, 2010). Whether indeed so, would need verification in suitably designed studies.

The conceptualisation of agentive steadfastness as an enduring trait of one’s personality was empirically supported by the temporal stability and endurance validity testing of the ASI. This yielded a strong correlation between the total scores of the ASI 6 months apart. The underpinnings of this result were found in the correlations between ratings on each ASI item observed 6 months apart. Strong to moderate correlations for 23 of the 27 items indicate that these features of agentive steadfastness endured as traits congruently with previous studies. A sense of belonging is considered an enduring trait (Velitchkova, 2021). Gratitude and appreciation have been considered to be dispositional characteristics (Sansone & Sansone, 2010). The same applies for a sense of inner safety and security (Davies & Martin, 2014), love and intimacy (Sprecher & Fehr, 2005), action predictability (Braukmann et al., 2018) and self-trust (Tanesini, 2019).

Whereas the validity results indicated that the ASI measured that which it was supposed to measure truthfully or accurately, the reliability results indicated that the ASI measured consistency and with precision. These reflect both the reliability of the data and the reproducibility or consistency of the ASI in its use (Vitoritou & Pickles, 2017). Internal consistency was excellent with a Cronbach alpha of .937, which indicate coherence among the items measuring the same construct (Anthoine et al., 2014). Consistency was also found in strong correlations between halves of the ASI, which indicate that

the halves contributed consistently to what was being measured. A clear three-factor model supported that the ASI reliably measured a coherent construct accounting for 49.31% of the cumulative variance. The five items that performed sub-optimally in the factor analysis may sensibly be reformulated and investigated further for contributing to the reliable measuring of agentive steadfastness. The ASI incurred no more than a small error of measurement, by which observed scores that could theoretically range from 0 to 189 were within 7.57 points of a true score, subject to a 68% degree of certainty as is custom for this calculation.

## LIMITATIONS

Defining the population as social media users means that the results do not necessarily apply to people who do not use social media for whichever reason. Previous studies have explored the differences among social media users and non-social-media users, in which some reported no differences or that the differences could be explained by demographic variables, specifically age, education, race, gender or income factors (Robinson & Martin, 2009). Other studies reported differences between specifically Facebook users and non-users regarding personality traits (e.g., Facebook users scored significantly higher on narcissism, self-esteem and extraversion) and positive variables protecting mental health (Brailovskaia & Margraf, 2016).

Nonetheless, increasing numbers of people have adopted social media and its user base has grown more representative of the broader population to the extent that data so derived may be more generalisable than a geographically defined population or when sampling from specific groups. For example, validation studies among students (as are commonly done) bring about some selection influences of age and interest, as do studies among health service users whose health status may impact on psychological features, among a local cultural or community group, people at a corporation, and people from a specific economic sector. These selection influences of location and groups may be averted by choosing a social media population as done in this study, but subsequent studies will nonetheless need to investigate whether these are indeed influencing the validity and reliability of the ASI.

Most study samples in research result from some degree of selective sampling and are generally not identical to the population from which they are selected (Fabrigar & Wegener, 2012). In this study, the social media user population was limited to willing participants. Willingness to participate in research could be seen as a form of volunteering, and for this reason considering theories explaining volunteerism could possibly help to explain the description of the study sample.

Well-known determinants of volunteering to participate in research that also pertained to this study are graduate and post-graduate education, female gender and being married (Wilson & Musick, 1997). Other determinants of volunteering that were not examined in this study but may limit generalisation of results are socioeconomic status, social network size and previous volunteer work (Niebuur et al., 2018).

Limitations pertain furthermore to the results concerning the gender, marital status, level of education and employment status of participants. The participants were predominantly female, married or in a long-term relationship, well-educated, and employed or self-employed. This profile is common in research of this kind (Park et al., 2018). These features of participants were not significantly associated with the ASI-scores or when so, only with a negligible effect. These results may be due to a type II statistical error, but this is unlikely considering the generous sample size. However, for the subgroups with small frequencies, a type II error cannot be ruled out, meaning further research with adequate frequencies for these subgroups will be required to know whether associations pertain. For example, the small frequency of participants in a committed relationship for less than 6 months ( $n = 6$ ) precludes valid statistical inferences, yet there may be theoretical reasons to hypothesise that this feature may be inversely correlated with agentive steadfastness (Botha & Booysen, 2013; Moudi et al., 2020).

Having a valid and reliable instrument is a crucial first step for examining agentive steadfastness quantitatively in further research and assessing clinically the extent of agentive steadfastness. Recommended in further research, the ASI may serve as instrument to measure agentive steadfastness in relation to other personality features including temperament and character, positive psychological attributes, psychological development, diagnostic categories and dimensions, prognostic parameters, responses to adversity and trauma, quality of life, longitudinal functioning, responses to therapy and long-term outcomes.

Subject to research on these relations, the ASI may be used clinically congruent with strengths-based and recovery models of mental healthcare in positive psychological terms (Carr, 2011; Peterson et al., 2006), potentially reflecting the antithesis of vulnerability to adversity and/or propensity for mental disorders. It may accordingly inform the clinician in providing guidance and psychoeducation, selecting suitable mental health interventions and defining therapeutic targets and objectives for therapy for specific individuals, families and groups.

## CONCLUSIONS

Results of this study are the first reported on measuring agentive steadfastness. These suggest that the ASI is a

valid and reliable measure evidenced by its convergent, discriminant and endurance validity (or temporal stability), and its internal consistency, split-half reliability, structural reliability and low SEM. These results warrant further research on the relation of agentive steadfastness with various aspects of personality, its potential prognostic value and the extent to which clients remain agentively steadfast in facing adversity in the absence or presence of various mental health difficulties. Subject to further validation, its use may be extended to populations for which agentive steadfastness may be an issue or a target of therapeutic pursuit.

## COMPLIANCE WITH ETHICAL STANDARDS

The study received ethics approval from the legally accredited Faculty of Health Sciences Research Ethics Committee of the University of Pretoria, South Africa. The study adhered to the stipulations of the 2013 version of the Declaration of Helsinki. All participants gave informed consent captured on an ethically approved study-specific informed consent document.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available owing to ethical restrictions as required by the research ethics committee that approved the study.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

**Data S1** Supporting Information.

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