

# Mjerenje zadovoljstva životom jednom česticom

## / *Single-Item Life Satisfaction Measurement*

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Generalno zadovoljstvo životom često je mjereno jednom česticom, no psihometrijske karakteristike takvog načina mjerenja rijetko su provjeravane. Glavni cilj ovog istraživanja je provjera pouzdanosti i valjanosti mjerenja zadovoljstva životom jednom česticom uspoređujući mjerenje jednom česticom s Ljestvicom zadovoljstva životom (SWLS). Istraživanje je provedeno na tri nezavisna prigodna uzorka studenata i odraslih. Pouzdanost mjerenja zadovoljstva životom jednom česticom procijenjena je dvjema metodama procjene (korištenjem formule za korekciju zbog atenuacije i korištenjem faktorske analize). Obje metode ukazuju zadovoljavajuću pouzdanost jedne čestice u sva tri nezavisna uzorka. Mjerenje zadovoljstva životom jednom česticom pokazalo je odgovarajuću kriterijsku valjanost. Kako bismo provjerili konstruktnu valjanost koristili smo povezanost između dviju mjera zadovoljstva životom i mjera općeg psihičkog distresa (CORE-10, CORE-OM i DASS-21). Rezultati ukazuju na zadovoljavajuću konstruktnu valjanost mjere zadovoljstva životom jednom česticom, odnosno ukazuju da je ta mjera snažnije povezana s mjerama općeg psihičkog distresa.

*/ General life satisfaction is often measured by a single item, but psychometric characteristics of this form of measurement are rarely verified. The main goal of this research is the verification of reliability and validity of single-item life satisfaction measurement by comparing single-item measurement with the Satisfaction with Life Scale (SWLS). The research was conducted on three independent convenience samples of students and adults. The reliability of single-item life satisfaction measurement was evaluated using two evaluation methods (using the correction for attenuation formula and factor analysis). Both methods indicate satisfactory reliability of a single item in all three independent samples. Single-item life satisfaction measurement showed appropriate criterion validity. In order to verify construct validity, the correlation between two life satisfaction measurements and general psychological distress measurements (CORE-10, CORE-OM, and DASS-21) was utilized. The results indicate satisfactory construct validity of single-item life satisfaction measurement, which implies that this measurement is more strongly associated with measurements of general psychological distress.*

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### **KLJUČNE RIJEČI / KEY WORDS:**

Zadovoljstvo životom / *Life Satisfaction*

Mjere s jednom česticom / *Single-Item Measurement*

Pouzdanost / *Reliability*

Valjanost / *Validity*

**TO LINK TO THIS ARTICLE:** <https://doi.org/10.24869/spsih.2019.449>

Pojam subjektivne dobrobiti podrazumijeva afektivne i kognitivne procjene koje neka osoba donosi o kvaliteti svog života (1). Tako ona uključuje doživljavanje ugodnih emocija, nisku razinu neugodnih raspoloženja i visok stupanj zadovoljstva životom (2). Zadovoljstvo životom kao kognitivna komponenta subjektivne dobrobiti evaluacijski je proces kojim osoba ocjenjuje kvalitetu svog života prema vlastitom jedinstvenom setu kriterija (3). Čine ga dva aspekta: globalni osjećaj zadovoljstva životom i zadovoljstvo pojedinim područjima života (3). Globalni osjećaj zadovoljstva životom podrazumijeva širu, kognitivno utemeljenu evaluaciju pojedinca o kvaliteti života u cjelini, a zadovoljstvo pojedinim područjima života predstavlja evaluaciju specifičnih aspekata života (3). Upravo zbog različitih standarda usporedbe između pojedinaca prigodom procjene zadovoljstva životom važno je ispitati globalnu procjenu nečijeg života, a ne samo zadovoljstvo pojedinim aspektima života (3). Osoba može biti zadovoljna u većini područja svog života, ali zbog nezadovoljstva u samo jednom području ipak sveukupno biti nezadovoljna. Globalna procjena zadovoljstva životom povezaniya je s područjima koja su pojedincu važnija, nego s onima manje važnima (4). Zadovoljstvo životom tako je mjera kognitivne procjene kvalitete ukupnih životnih okolnosti u kojima pojedinac živi (5).

Istraživanja sustavno pokazuju važnost konstrukta zadovoljstva životom, jer je snažno i konzistentno povezan s pozitivnim životnim ishodima poput zdravlja, prihoda i bolje radne učinkovitosti (1,6-8). Zadovoljstvo životom jedan je od nekoliko aspekata mentalnog zdravlja. Mjere zadovoljstva životom osjetljive su na cijeli spektar funkcioniranja te su istovremeno i indikator psihopatologije i dobrobiti. Zadovoljstvo životom tako je pozitivno povezano s općim zdravljem, optimizmom, samoučinkovitošću i samopoštovanjem (9-13), a negativno

Subjective wellbeing implies a person's affective and cognitive estimates regarding their quality of life (1). This includes the experience of positive emotions, a low level of unpleasant moods, and a high level of life satisfaction (2). Life satisfaction as a cognitive component of subjective wellbeing is an evaluation process through which a person evaluates the quality of their life according to their unique set of criteria (3). It is constituted of two aspects: the overall feeling of life satisfaction and satisfaction with individual areas of life (3). The overall feeling of life satisfaction implies an individual's wider, cognitive-based evaluation regarding overall quality of life, while satisfaction with individual areas of life represents evaluation of specific aspects of life (3). A person can be satisfied with the majority of their areas of life, but dissatisfaction with only one area can lead to overall dissatisfaction. Overall life satisfaction evaluation is more connected with areas which are more important for an individual than with those which are less important (4). Life satisfaction is therefore the measurement of cognitive quality evaluation of overall life circumstances of an individual's life (5).

Studies consistently show the importance of the life satisfaction construct because it is strongly and consistently correlated with positive life outcomes such as health, income, and improved work efficiency (1,6-8). Life satisfaction is one of several aspects of mental health. Life satisfaction measurements are sensitive to an entire range of functioning and are simultaneously an indicator of psychopathology and wellbeing. Life satisfaction is positively associated with overall health, optimism, self-efficacy, and self-respect (9-13), and negatively with depression, anxiety, and general psychological distress (14) and negative affect (15).

Experts have consistently supported the inclusion of measurements of life satisfaction in

s depresivnošću, anksioznošću i općim psihološkim distresom (14) te negativnim afektom (15).

Stručnjaci se uporno zalažu za uključivanje mjere zadovoljstva životom u strategije javnih politika. Tako Francuska od 2010. g., a Velika Britanija od 2011. g. sustavno mjere stupanj zadovoljstva životom svojih građana koristeći rezultate kao smjernice za različite strateške odluke. Vlada SAD-a provodi projekt *Healthy People 2020* čiji je cilj promocija kvalitete života, a u kojem je jedna od mjera i zadovoljstvo životom (1). Podatci o zadovoljstvu životom koriste se u svrhu mjerenja kvalitete života, praćenja socijalnog napretka, evaluacije politika i identificiranja uvjeta dobrog života (16).

Zbog svog iznimnog značenja mjera zadovoljstva životom uključena je i u sveobuhvatna socijalna istraživanja. Primjer takvih mjera su panel studije poput *Germany Socio-Economic Panel* (GSOEP), *British Household Panel Study*, *Swiss Household Panel* i *Australian Household, Income and Labour Dynamics* (HILDA) te međunarodna istraživanja političkih, socijalnih, ekonomskih i kulturoloških determinanti kvalitete života poput *Gallup World Poll*, *World Values Survey* te *European Social Survey*. Ovakva istraživanja provode se kako bi se utvrdili različiti aspekti funkcioniranja pojedinca u društvu te stoga moraju biti provedena na velikim reprezentativnim uzorcima, a uključuju brojna pitanja. Radi toga je primarni cilj zadržati pažnju sudionika kako bi odgovorio na sva pitanja, čemu idu u prilog kratke, ali pouzdane i valjane mjere. Zadovoljstvo životom se često mjeri samo s jednom česticom koja u pravilu glasi "Koliko ste zadovoljni svojim životom kao cjelinom", a odgovara se na ljestvici čiji se broj stupnjeva razlikuje od istraživanja do istraživanja (1). Ovakav način mjerenja je u skladu s Teorijom homeostaze subjektivne kvalitete života autora Roberta A. Cumminsa (17). Uočivši da ljudi uglavnom opisuju svoje zadovoljstvo životom koristeći se pozitivnim

public policy strategies. Since 2010 in France and 2011 in Great Britain, the citizens' level of life satisfaction has been consistently measured and the results used as guidelines for various strategic decisions. The USA government is implementing a project called *Healthy People 2020*, the goal of which is the promotion of life quality and the measurements of which include life satisfaction (1). Data on life satisfaction are used for the purposes of measuring life quality, monitoring social progress, policy evaluation, and the identification of conditions for a good life (16).

Due to its extraordinary importance, life satisfaction measurement has been included in comprehensive social studies. Examples of such measures include panel studies such as *Germany Socio-Economic Panel* (GSOEP), *British Household Panel Study*, *Swiss Household Panel*, *Australian Household, Income and Labour Dynamics* (HILDA), and international studies of political, social, economic, and cultural determinants of quality of life, such as *Gallup World Poll*, *World Values Survey* and *European Social Survey*. Such studies are conducted in order to determine various aspects of an individual's functioning in society and therefore must be conducted on large representative samples, and include numerous questions. Due to this, the primary goal is to retain the participants' attention so that they answer all questions, which is why brief but reliable and valid measurements are an advantage. Life satisfaction is often measured using a single item, which is usually "How satisfied are you with your life overall?" and is answered on a scale whose number of components varies from study to study (1). This form of measurement is in accordance with the theory of subjective well-being homeostasis by Robert A. Cummins (17). Noticing that people usually describe their satisfaction with life using the positive part of the scale ranging from dissatisfaction to satisfaction, Cummins (17,18) posits a hypothesis

dijelom ljestvice raspona od nezadovoljstva do zadovoljstva, Cummins (17,18) postavlja hipotezu o održavanju kvalitete života u ravnoteži, tj. hipotezu o postojanju mehanizma za održavanje doživljaja subjektivne kvalitete života na određenoj razini, na višim pozitivnim vrijednostima (između 60-80 % ljestvičnog maksimuma). Rezultati istraživanja pokazuju da značajne promjene u životnim uvjetima dovode do privremene promjene u razini kvalitete života, ali da tijekom vremena dolazi do povratka razine kvalitete života na onu karakterističnu za pojedinca, dok samo ekstremni unutrašnji ili vanjski čimbenici dovode do trajnog, značajnog smanjenja samoprocjene kvalitete života (19).

Instrumenti koji mjere zadovoljstvo životom pojavljuju se u tri formata: 1. mjerenje zadovoljstva životom jednom česticom (npr. 17,18,20), 2. mjerenje zadovoljstva životom ljestvicom općeg zadovoljstva (npr. 21,22) i 3. mjerenje zadovoljstva životom po specifičnim životnim domenama (npr. 23,24). U posljednje se vrijeme sve češće koriste izrazito kratke i globalne mjere, posebice u istraživanjima koja koriste *on-line* metodu prikupljanja podataka.

Nekoliko je praktičnih i teorijskih prednosti kratkih mjera. Kratke mjere smanjuju troškove istraživanja i njegovu dužinu (25), razumljive su sudionicima istraživanja i reprezentiraju globalan način na koji ljudi razmišljaju (26). Teorijska prednost mjera jednom česticom veže se uz jasniju standardizaciju mjere nekog konstrukta. Uporaba istih standardiziranih, besplatnih za upotrebu i lako implementiranih mjera može olakšati prikupljanje usporedivih rezultata u različitim istraživanjima (26), te biti poticaj za evaluaciju ishoda u kliničkoj praksi (27).

Unatoč navedenim razlozima za korištenje mjera s jednom česticom, postoji preferencija korištenja mjera s više čestica zbog pretpostavljenih boljih psihometrijskih svojstava dužih ljestvica (28), koje označava viši stupanj pouz-

on the maintenance of quality of life in balance, i.e. a hypothesis on the existence of a mechanism for maintaining the experience of subjective wellbeing on a certain level, on higher positive values (between 60 and 80% of the scale maximum). Study results show that significant changes in living conditions lead to a temporary change in the level of quality of life, but that over time the level of quality of life returns to that characteristic for an individual, while only extreme internal or external factors lead to a permanent, significant reduction in self-evaluation of quality of life (19).

Instruments for quality of life measurement appear in three formats: 1. single-item life satisfaction measurement (e.g. 17,18,20), 2. life satisfaction measurement using the general satisfaction with life scale (e.g. 21,22), and 3. life satisfaction measurement according to specific domains (e.g. 23,24). Recently, very short, general measurements have increasingly been used, especially in studies using the on-line method of data collection.

Short measurements have several practical and theoretical advantages. Short measurements reduce study expenses and its length (25), are understandable for study participants, and represent the general way people think (26). The theoretical advantage of single-item measurement is linked with a clearer standardization of the measurement of a certain construct. Using the same standardized, free to use, and easy to implement measurements can facilitate the collection of comparable results in various studies (26) and serve as incentive for the evaluation of outcomes in clinical practice (27).

Despite the abovementioned reasons for using single-item measurements, there is a preference for using multi-item measurements due to assumed improved psychometric characteristics of longer scales (28), which are marked by a greater level of reliability and validity due to increased variability of results and greater range of measurement (29-32).



danosti i valjanosti zbog povećane varijabilnosti rezultata i veće širine mjerenja (29-32).

Kao potencijalni problem primjene mjera jednom česticom često se navodi poteškoća u dokazivanju njezinih psihometrijskih karakteristika. Smatra se kako mjere jednom česticom imaju nisku pouzdanost zbog osjetljivosti na djelovanje nesistematskih varijabilnih faktora te povezano s tim i nisku razinu valjanosti. Glavna kritika primjene mjera jednom česticom je nemogućnost procjene pouzdanosti tipa unutarnje konzistencije. Zbog toga se procjene pouzdanosti mjera jednom česticom određuju alternativnim metodama (npr. 33). Čak i uz relativno visoku pouzdanost, valjanost može biti niska ili barem slabija nego kod ljestvica s više čestica. Ljestvice s više čestica mogu zahvatiti različite značajke konstrukta, što rezultira valjanijom mjerom. Glavna zabrinutost u vezi mjera jednom česticom je da su one vrlo uske i možda neće biti moguće uhvatiti širinu konstrukta. Iako je zadovoljstvo životom relativno uski konstrukt, koji se može zahvatiti jednim pitanjem, potrebne su izravne usporedbe valjanosti mjera s jednom i više čestica.

Mjere s više čestica, međutim, imaju neka ograničenja radi kojih se u istraživačkom i kliničkom radu možemo odlučiti za primjenu samo jedne čestice. Prigodom ispunjavanja monotonih ljestvica s dugim trajanjem sudionici mogu osjetiti dosadu, iritaciju, zamor, gnjavažu, frustraciju ili ljutnju (34,35). To može rezultirati smanjenom kognitivnom participacijom (36) koja povećava nemarno i nasumično odgovaranje, koje narušava pouzdanost i valjanost rezultata (37,38). Čak i niska razina nepažljivog i nasumičnog odgovaranja može značajno utjecati na valjanost korelacijskih istraživanja (39,40). Niska stopa odgovaranja može dovesti i do pristranog uzorka (41) što utječe na mogućnost generalizacije rezultata (42). Mjere jednom česticom mogu imati veću pojavnu valjanost zbog percepcije čestice kao direktne mjere konstrukta (43). Mjere jednom česticom mogu

One commonly cited potential problem of applying single-item measurements is the difficulty of proving its psychometric characteristics. It is believed that single-item measurements have a low reliability due to their sensitivity to non-systematic variable factors and therefore have a low level of validity. The main criticism of the application of single-item measurements is related to the impossibility of assessing the type of internal consistency reliability. Therefore, assessments of the reliability of single-item measurements are determined using alternative methods (e.g. 33). Even with relatively high reliability, validity can be low or at least lower than in multi-item scales. Multi-item scales can encompass various construct characteristics, which results in a more valid measurement. The main concern regarding single-item measurements is that they are very narrow and may not be capable of encompassing the construct range. Although life satisfaction is a relatively narrow construct, which can be encompassed with only one question, there is a need for direct comparison of validity of single-item and multi-item measurements.

However, multi-item measurements have certain limitations which can lead to the application of only one item in research and clinical work. While filling in monotonous scales that take a long time, participants may experience boredom, irritation, fatigue, annoyance, frustration, or anger (34,35). This may result in reduced cognitive participation (36) which increases careless and random answering, which then lowers reliability and validity of results (37,38). Even a low level of inattentive and random answering may significantly affect the validity of correlational studies (39,40). A low rate of answers may also lead to a biased sample (41), which affects the possibility of generalizing the results (42). Single-item measurements may have greater face validity due to the perception of the item as a direct measurement of construct (43). Single-item measurements may be stimulating for use in clinical practice be-

biti poticajne za uporabu u kliničkoj praksi jer omogućuju trijažu onih pacijenata kojima je potrebna detaljnija provjera, te evaluaciju i praćenje ishoda liječenja (27,44).

Druga psihometrijska prednost korištenja mjera jednom česticom odnosi se na problem varijance zajedničke metode. Ako su podatci prikupljeni na isti način može doći do međusobne povezanosti koja se više temelji na vrsti podataka nego na stvarnim vezama između varijabli (45). U odnosu na mjere s više čestica mjere s jednom česticom mogu pružiti točniju procjenu nekog globalnog, složenijeg koncepta. Tako, primjerice, istraživanja provedena s psihijatrijskim (27) i onkološkim (44) pacijentima pokazuju kako se na temelju globalnih mjera mogu razlikovati sudionici kojima je potrebna pomoć zbog depresivnih smetnji, stresa, umora i snižene kvalitete života. Prigodom mjerenja nekog globalnog konstrukta mjerom koju čini jedna čestica odgovor sudionika može reflektirati samo one facete koje su njemu osobno važne, dok su kod mjera s više čestica sve facete jednako vrednovane. Mjera jednom česticom prikladna je za one konstrukte koji imaju jednoznačno značenje kod sudionika, koji se mogu lako i podjednako zamisliti te za one konstrukte čiji su atributi konkretni (32). Također, globalna mjera konstrukta može biti korisna istraživačima kada je riječ o konstruktima koji su relativno veliki što otežava stvaranje čestica koje obuhvaćaju sve njegove atribute. Dodatna prednost korištenja mjera jednom česticom je jasnoća u prenošenju rezultata laicima jer se uporišnim točkama čestice mogu dodijeliti lako razumljiva značenja. Istraživanja su pokazala kako jedna čestica može pružiti smisleniju informaciju kad je riječ o konstruktima koji su jednoznačni i jasni sudionicima (46).

Dosadašnja istraživanja pouzdanosti i valjanosti mjerenja zadovoljstva životom jednom česticom daju obećavajuće rezultate. Istraživanja kriterijske valjanosti, koja označava stupanj u

cause they enable triage of patients who require more detailed examination and evaluation and monitoring of treatment outcomes (27,44).

The second psychometric advantage of using single-item measurements is related to the problem of common-method variance. If the data was collected in the same way, this may lead to interconnectedness based more on the type of data than on actual connections between variables (45). In comparison with multi-item measurements, single-item measurements may offer a more precise evaluation of a global, more complex concept. For example, studies conducted on psychiatric (27) and oncological (44) patients show that global measurements may indicate which participants need help due to depression, stress, fatigue, and reduced quality of life. While measuring a certain global construct using single-item measurement, the participants' replies may reflect only those facets that are important to them personally, while in the case of multi-item measurements all facets are equally evaluated. Single-item measurement is appropriate for constructs which participants perceive as having a single meaning, which can be easily and equally imagined, and those whose attributes are concrete (32). Also, global measurement of construct may be valuable for researchers when constructs are relatively large, which complicates the creation of items that encompass all of their attributes. An added advantage of using single-item measurement is the clarity in conveying the results to laypeople because easily understandable meaning can be attributed to the item's reference points. Studies have shown that a single item can offer more meaningful information in the case constructs that are unequivocal and clear to the participants (46).

Existing studies of reliability and validity of single-item life satisfaction measurements provide promising results. Studies on criterion validity, which indicates to what degree the results measured using a certain questionnaire

kojemu su rezultati mjereni određenim upitnikom povezani kriterijem koji je zlatni standard, daju podršku kriterijskoj valjanosti mjerenja zadovoljstva životom jednom česticom (1,47-49). Također, istraživanja konstruktne valjanosti, koja se definira kao stupanj u kojemu su rezultati mjereni određenim upitnikom povezani s drugim mjerama na način koji je konzistentan s teorijski određenim hipotezama, idu u prilog mjerenja zadovoljstva životom jednom česticom. Usporedbom Ljestvicom zadovoljstva životom (21) dobivena je slična povezanost sa sociodemografskim varijablama i različitim mjerama zdravlja, ličnosti i dobrobiti (1,49). Također je dobivena slična povezanost između dviju mjera zadovoljstva životom sa školskim uspjehom te različitim indikatorima mentalnog zdravlja i dobrobiti (48).

Dosadašnja istraživanja pouzdanosti i valjanosti mjerenja zadovoljstva životom su malo-brojna unatoč čestom korištenju jedne čestice kao mjere zadovoljstva životom. Upravo zbog široke primjene mjera jednom česticom kao i sve brojnijih istraživanja, pogotovo *online* metodom koja nam donosi budućnost, u kojima mjerne ljestvice trebaju biti kratke, a isto tako i pouzdane i valjane u reprezentiranju konstrukta koji mjere, važno je prikupljati informacije o metrijskim karakteristikama mjera zadovoljstva životom jednom česticom. Zbog važnosti populacijskih procjena kvalitete života važno je provjeriti psihometrijska svojstva takvih mjera u različitim kulturama. Do sada nije bilo istraživanja valjanosti i pouzdanosti mjerenja zadovoljstva životom jednom česticom na uzorcima građana Hrvatske te je ovaj rad tako prvo takvo istraživanje.

Cilj ovog istraživanja bio je utvrditi psihometrijska svojstva, odnosno odrediti stupanj pouzdanosti, te kriterijsku i konstruktnu valjanost mjere zadovoljstva životom jednom česticom. Konkretno, procijenili smo valjanost kriterija mjere zadovoljstva životom s jednom česticom uspoređujući ih dobro utvrđenom

are related to the criterion which is the gold standard, provide support for criterion validity of single-item life satisfaction measurement (1,47-49). Also, studies of construct validity, which indicates to what degree the results measured using a certain questionnaire are related to other measurements in a way that is consistent with theoretically defined hypotheses, go in favour of single-item life satisfaction measurement. A comparison with the Satisfaction with Life Scale (21) provided a similar correlation with sociodemographic variables and various measurements of health, personality, and wellbeing (1,49). A similar correlation between two life satisfaction measurements and school achievement and various indicators of mental health and wellbeing was also discovered (48).

Existing studies of reliability and validity of life satisfaction measurements are few in number despite the fact that a single item is commonly used in life satisfaction measurement. Due to the wide application of single-item measurement, as well as the increasing number of studies, especially those using the on-line method, in which the measurement scales need to be short but also reliable and valid in representing the measured construct, it is important to collect information on metric characteristics of single-item life satisfaction measurements. Due to the importance of the evaluation of the population's quality of life, it is important to examine the psychometric characteristics of such measurements in various cultures. There have been no previous studies of the validity and reliability of single-item life satisfaction measurement on a sample of Croatian citizens, which makes this paper the first such study.

The goal of this study was to determine the psychometric characteristics, i.e. identify the degree of reliability and the criterion and construct validity of single-item life satisfaction measurement. More specifically, we evaluated the validity of single-item life satisfaction measurements by comparing them using a well-established

mjerom zadovoljstva životom s više čestica – Ljestvica zadovoljstva životom (21). Konstruktnu valjanost smo utvrdili usporedbom povezanosti između dviju mjera zadovoljstva životom i teorijski relevantnog konstrukta psihičkog distresa. Važno je istaknuti da smo istraživanja proveli na tri neovisna uzorka punoljetnih osoba.

## METODA

### Sudionici

Istraživanje je provedeno na tri neovisna, prigodna uzorka, jednom uzorku studenata, a druga dva odraslih zaposlenih osoba. U istraživanju je sudjelovalo  $N_s=687$  studenata (od toga 74,5 % studentica) u dobi od 18 do 26 godina ( $M_s = 21,5$ ,  $SD_s = 1,90$ ). U prvom uzorku odraslih sudjelovalo je  $N_{O1}=174$  (77 % žena) zaposlenih u dobi između 22 i 62 godine ( $M_{O1} = 35,7$ ,  $SD_{O1} = 8,25$ ), a u drugom  $N_{O2}=221$  sudionik (95 % žena) u dobi od 20 do 72 godine ( $M_{O2} = 41,3$ ,  $SD_{O2} = 12,49$ ). Neke analize provedene su na studentskom i ukupnom odraslom uzorku ( $N_o=395$ ).

### Mjerni instrumenti

U sva tri uzorka primijenjene su dvije identične mjere procjene zadovoljstva životom, te je uz njih, u svakom uzorku primijenjena različita mjera psihičkog distresa.

Ljestvica zadovoljstva životom (engl. *Satisfaction with Life Scale*, SWLS)(21) je globalna procjena zadovoljstva životom te je najčešće korištena mjera zadovoljstva životom. Sastoji se od pet tvrdnji za koje sudionici procjenjuju svoj stupanj slaganja. U izvornoj verziji riječ je o ljestvici Likertovog tipa sa sedam uporišnih točaka i ta je originalna verzija korištena u dva odrasla uzorka. U studentskom uzorku korištena je modificirana verzija s petostupanj-skom ljestvicom, što je sukladno istraživanjima

multi-item life satisfaction measurement – the Satisfaction with Life Scale (21). Construct validity was determined using a comparison of correlation between two life satisfaction measurements and the theoretically relevant construct of psychological distress. It is important to emphasize that the studies were conducted on three independent samples of adults.

## METHOD

### Participants

The study was conducted on three independent convenience samples, one consisting of students and the remaining two of employed adults.  $N_s=687$  students participated in the study (74.5% of whom were female) aged between 18 and 26 ( $M_s = 21.5$ ,  $SD_s = 1.90$ ). In the first sample of adults,  $N_{O1}=174$  (77% women) were employed adults aged between 22 and 62 ( $M_{O1} = 35.7$ ,  $SD_{O1} = 8.25$ ), while in the second there were  $N_{O2}=221$  participants (95% women) aged between 20 and 72 ( $M_{O2} = 41.3$ ,  $SD_{O2} = 12.49$ ). Some analyses were conducted on both the student and total adult samples ( $N_o=395$ ).

### Measurement instruments

In all three samples two identical life satisfaction assessment measurements were applied, and in each sample another different measurement of psychological distress was also applied.

The Satisfaction with Life Scale (SWLS) (21) is a global assessment of life satisfaction and is the most commonly used life satisfaction measurement. It consists of five items, with participants assessing to what extent they agree with each of them. The original version contained a Likert scale with seven reference points, and this original version was used in two adult samples. A modified version with a five-point scale was used in the student sample, which is in accordance with studies that have shown



koja su pokazala kako je verzija s pet stupnjeva usporediva s onom od sedam stupnjeva (50) te da su psihometrijske karakteristike objiju vrsta ljestvica gotovo identične (51). Ukupan rezultat izračunava se zbrajanjem rezultata na svim tvrdnjama (raspon od 5 do 25) i označava stupanj zadovoljstva životom pri čemu veći rezultat predstavlja veće zadovoljstvo. Pouzdanost tipa unutarnje konzistencije mjerena Cronbach alfa koeficijentom u ovom istraživanju na studentskom uzorku iznosi  $\alpha_s = 0,78$  (petostupanjska ljestvica), a na dva odrasla uzorka koji su procjene davali na sedam stupnjeva koeficijenti pouzdanosti su redom  $\alpha_{01} = 0,87$ ;  $\alpha_{02} = 0,90$ .

Zadovoljstvo životom izmjereno je i česticom „Koliko ste sveukupno zadovoljni svojim životom?“ ljestvicom za procjenu od 0 (u potpunosti nezadovoljan/a) do 10 (u potpunosti zadovoljan/a).

## Psihički distres

U prvom odraslom uzorku psihički distres procijenjen je CORE-OM upitnikom (engl. *Clinical Outcome in Routine Evaluation – Outcome Measures*) (52,53) koji je konstruiran kao panteorijska i pandijagnostička mjera opće psihološke uznemirenosti, a sadrži 34 čestice. Zadatak sudionika je procijeniti koliko često se osjećao na opisani način tijekom proteklog tjedna (0-nikada, 1-vrlo rijetko, 2-ponekad, 3-često, 4-gotovo uvijek). Čestice se odnose na četiri dimenzije – subjektivna dobrobit, problemi/simptomi, svakodnevno funkcioniranje i rizik. U ovom istraživanju koristili smo ukupni rezultat kao mjeru općeg psihičkog distresa, te se teorijski raspon kreće od 0 do 136. Koeficijent pouzdanosti tipa unutarnje konzistencije je visok i iznosi  $\alpha = 0,95$ .

U studentskom uzorku koristili smo skraćenu verziju CORE-OM upitnika – CORE-10 (engl. *Clinical Outcome in Routine Evaluation – 10*) (54). Sadrži deset čestica koje obuhvaćaju iskustvo anksioznih i depresivnih simptoma, traumatu,

that the version with five points is comparable with the one with seven points (50) and that the psychometric characteristics of both scale types are almost identical (51). The total score is obtained by adding the results of all items (ranging from 5 to 25) and indicates the degree of life satisfaction, with a higher score representing greater satisfaction. The reliability of the type of internal consistency measured by Cronbach's alpha coefficient on the student sample of this study was  $\alpha_s = 0.78$  (five-point scale), while in the case of the two adult samples with assessments given for seven points the coefficients of reliability were  $\alpha_{01} = 0.87$  and  $\alpha_{02} = 0.90$  respectively.

Life satisfaction was also measured using the item “How satisfied are you with your life overall?” with the assessment scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied).

## Psychological distress

In the first adult sample, psychological distress was assessed using the CORE-OM questionnaire (*Clinical Outcome in Routine Evaluation – Outcome Measures*) (52,53) which was constructed as a pantheoretical and pandiagnostic measurement of general psychological distress consisting of 34 items. The participants' task was to assess how often they felt a certain way over the preceding week (0-never, 1-very rarely, 2-sometimes, 3-often, 4-almost always). The items were related to four dimensions – subjective wellbeing, problems/symptoms, everyday functioning, and risk. In this study the total result was used as a measurement of general psychological distress, with the theoretical range from 0 to 136. The reliability coefficient of the type of internal consistency was high at  $\alpha = 0.95$ .

A shortened version of the CORE-OM questionnaire was used in the student sample – the CORE-10 (*Clinical Outcome in Routine Evaluation – 10*) (54). It contains ten items encompassing the experience of symptoms of anxiety

tjelesne probleme, funkcioniranje (generalno, intimni i socijalni odnosi) te rizik za sebe. Sudionici daju svoje procjene na ljestvici od 0 - nikada do 4 - gotovo uvijek. Ukupan rezultat je zbroj procjena za svaku tvrdnju, a viši rezultat upućuje na višu razinu općeg psihičkog distresa (raspon od 0 do 40). Pouzdanost ljestvice je zadovoljavajuća i iznosi  $\alpha = 0,82$ .

U drugom uzorku odraslih koristili smo Ljestvicu depresivnosti, anksioznosti i stresa (DASS-21, engl. *Depression, Anxiety and Stress Scale-21*) (55) koja mjeri učestalost i intenzitet neugodnih emocionalnih stanja depresivnosti, anksioznosti i stresa u razdoblju od proteklih sedam dana. Sastoji se od tri podljestvice: depresivnosti (DASS-21D), anksioznosti (DASS-21A) i stresa (DASS-21S). Svaka podljestvica sastoji se od 7 čestica, a zadatak sudionika je označiti koliko se svaka tvrdnja odnosila na njega u proteklih tjedan dana na ljestvici Likertovog tipa sa četiri stupnja (0 - uopće se nije odnosilo na mene, do 3 - gotovo u potpunosti ili većinu vremena se odnosilo na mene). Rezultat za svaku podljestvicu kreće se u rasponu od 0 do 21 i računa se tako da se zbroje rezultati dobiveni na 7 čestica koje čine podljestvicu. Ukupni rezultat se dobiva zbrajanjem rezultata na svim podljestvicama, a teorijski raspon je od 0 do 63. Pouzdanost cijele ljestvice na našem uzorku iznosi  $\alpha = 0,95$ .

Osim navedenog, primijenjen je i upitnik demografskih podataka kojim su prikupljeni podatci o dobi, spolu, obrazovanju te mjestu/gradu življenja.

## REZULTATI

Prema vrijednostima Kolmogorov-Smirnovljevog testa distribucije Ljestvice zadovoljstva životom (na studentskom uzorku), čestice koja samostalno predstavlja mjeru zadovoljstva životom te CORE-10 i CORE-OM upitnika statistički značajno odstupaju od normalne (tablica 1). Kolmogorov-Smirnovljevi test je zbog

and depression, trauma, physical problems, functioning (general, intimate, and social relations), and risk to oneself. The participants provide their assessments on a scale from 0 – never to 4 – almost always. The total result is gained by adding the assessment for each item, with a higher result indicating a higher level of general psychological distress (ranging from 0 to 40). The scale reliability is satisfactory at  $\alpha = 0.82$ .

In the second adult sample the DASS-21 scale (*Depression, Anxiety and Stress Scale-21*) (55) was used, which measure the frequency and intensity of unpleasant emotional states of depression, anxiety, and stress within the preceding seven days. It consists of three sub-scales: depression (DASS-21D), anxiety (DASS-21A), and stress (DASS-21S). Each sub-scale consists of seven items, and the participants' task is to indicate to what extent each claim was true for them over the preceding week on a Likert type scale with four points (from 0 – not true for me to 3 – almost completely or most of the time true for me). The result for each sub-scale ranges from 0 to 21 and is gained by adding together the results gained on the seven items that make up the sub-scale. The total result is gained by adding together the results of all sub-scales, with the theoretical range from 0 to 63. The reliability of the entire scale on our sample was  $\alpha = 0.95$ .

Furthermore, a questionnaire on demographic data was also used to collect data on age, gender, education, and place of residence.

## RESULTS

According to the values of the Kolmogorov-Smirnov distribution test of the Satisfaction with Life Scale (on the student sample), the items that independently represent the measurement of life satisfaction and the CORE-10 and CORE-OM questionnaires statistically significantly deviate from the norm (table 1). Due to its sensitivity to sample size, the Kolmogorov-Smirnov test is occasionally a

svoje osjetljivosti na veličinu uzorka ponekad prestrog pokazatelj normalnosti distribucije te može biti značajan čak i kad se rezultati neznatno razlikuju od normalne distribucije (56). Zbog navedenog, najbolje je zaključiti je li distribucija normalna na temelju asimetričnosti i spljoštenosti distribucija. Uvidom u indekse asimetričnosti i spljoštenosti sve distribucije se mogu smatrati normalnima i prihvatljivima za daljnje korištenje parametrijskih postupaka, jer se prema Klineovim parametrima normalnosti distribucije indeksi asimetričnosti nalaze se u rasponu od  $\pm 3$ , a indeksi spljoštenosti u rasponu od  $\pm 10$  (57).

## Deskriptivna statistika

Rezultati pokazuju da se prosječna vrijednost procjene zadovoljstva životom na obje mjere kreće u gornjoj polovici ljestvičnog raspona. Na ljestvicama psihičkog distresa sudionici postižu u prosjeku niske vrijednosti (tablica 1).

## Pouzdanost

Za procjenu pouzdanosti Ljestvice zadovoljstva životom korišteni su koeficijenti pouzdanosti tipa unutarnje konzistencije. Za procjenu pouzdanosti mjerenja zadovoljstva životom jednom česticom važno je koristiti formulu za korekciju zbog atenuacije (58). Dobivene pouzdanosti

too strict indicator of normal distribution and may be significant even when the results differ insignificantly from normal distribution (56). For this reason, it is best to conclude whether distribution is normal on the basis of kurtosis and skewness of distribution. Insight into indices of asymmetry and flattening shows that all distribution can be considered normal and acceptable for further use of parameter procedures, since according to Kline's parameters of distribution normality indices of skewness are within the range of  $\pm 3$ , while the indices of kurtosis is in the range of  $\pm 10$  (57).

## Descriptive statistics

Results show that the average value of life satisfaction assessment of both measurements is within the upper half of the scale range. On scales of psychological distress participants achieve lower values on average (table 1).

## Reliability

Internal consistency reliability coefficients were employed for the evaluation of the Satisfaction with Life Scale. It is important to use the formula for attenuation correction (58) for reliability evaluation of single-item life satisfaction measurement. The reliability coefficients of the Satisfaction with Life Scale are  $\alpha_s$

**TABLICA 1.** Deskriptivna statistika i rezultati Kolmogorov-Smirnovljevog testa za korištene mjerne instrumente, Ljestvicu zadovoljstva životom (SWLS), česticu koja samostalno predstavlja mjeru zadovoljstva životom, CORE-10, CORE-OM i DASS-21  
**TABLE 1.** Descriptive statistics and results of the Kolmogorov-Smirnov test for employed measurement instruments, Satisfaction with Life Scale (SWLS), the item that independently represents life satisfaction measurement, CORE-10, CORE-OM, and DASS-21

| Mjera / Measurement               | Uzorak / Sample                            | N   | M    | SD    | Teorijski raspon / Theoretical range | K-S z   | Spljoštenost / Kurtosis | Asimetričnost / Skewness |
|-----------------------------------|--|-----|------|-------|--------------------------------------|---------|-------------------------|--------------------------|
| SWLS                              | Studenti / Students                        | 725 | 18.7 | 3.25  | 0 – 25                               | 2.871** | -0.605                  | 0.546                    |
|                                   | Odrasli <sub>1</sub> / Adults <sub>1</sub> | 169 | 21.8 | 5.80  | 0 – 35                               | 0.798   | -0.041                  | -0.371                   |
|                                   | Odrasli <sub>2</sub> / Adults <sub>2</sub> | 221 | 23.3 | 6.53  | 0 – 35                               | 1.256   | -0.501                  | -0.138                   |
| ŽZ jedna čestica / LS single item | Studenti / Students                        | 702 | 7.9  | 1.43  | 0 – 10                               | 5.163** | -1.125                  | -2.311                   |
|                                   | Odrasli <sub>1</sub> / Adults <sub>1</sub> | 174 | 6.9  | 1.83  | 0 – 10                               | 2.236** | -0.439                  | -0.077                   |
|                                   | Odrasli <sub>2</sub> / Adults <sub>2</sub> | 221 | 7.5  | 2.05  | 0 – 10                               | 2.463** | -0.532                  | -0.545                   |
| CORE-10                           | Studenti / Students                        | 715 | 12.3 | 5.92  | 0 – 40                               | 1.910** | 0.566                   | 0.426                    |
| CORE-OM                           | Odrasli <sub>1</sub> / Adults <sub>1</sub> | 172 | 35.1 | 18.80 | 0 – 136                              | 1.929** | 1.226                   | 1.297                    |
| DASS-21                           | Odrasli <sub>2</sub> / Adults <sub>2</sub> | 219 | 25.5 | 22.58 | 0 – 63                               | 0.931   | 0.584                   | -0.217                   |

Legenda: \*\*p<0.01 / Key: \*\*p<0.01

Ljestvice zadovoljstva životom su redom  $\alpha_s = 0,78$  (petostupanjnska ljestvica),  $\alpha_{O1} = 0,87$ ;  $\alpha_{O2} = 0,90$  (sedmostupanjnske ljestvice).

Pouzdanost mjere zadovoljstva životom jednom česticom određena korištenjem formule za korekciju zbog atenuacije (58) na studentskom uzorku iznosi 0,64, a na odraslom 0,74 te predstavlja minimalnu razinu pouzdanosti.

Drugi način procjene pouzdanosti mjere s jednom česticom je faktorska analiza. Provedena je eksploracijska faktorska analiza u koju su uključene čestice Ljestvice zadovoljstva životom zajedno s česticom koja samostalno predstavlja mjeru zadovoljstva životom. Prije provedbe faktorske analize testirani su njezini preduvjeti. Kaiser-Meyer-Olkinov test prikladnosti uzorka, koji pokazuje proporciju varijance koja je objašnjena latentnim faktorima, bio je zadovoljavajuće visok ( $KMO_s = 0,84$ ;  $KMO_o = 0,90$ ) (59). Dodatno, Bartlettov test, koji provjerava postoji li statistički značajna razlika između korelacijske matrice i matrice identiteta u kojoj su korelacije između varijabli jednake nuli, pokazao se statistički značajnim ( $\chi^2_s = 1560,98$ ,  $df = 15$ ,  $p < 0,01$ ;  $\chi^2_o = 1269,11$   $df = 15$ ,  $p < 0,01$ ). Navedeni rezultati opravdavaju provođenje faktorske analize na ovim uzorcima i pripadnim podatcima. Faktorske analize provedene su metodom analize glavnih komponenata. Na oba uzorka ekstrahiran je jedan faktor, prema Kaiser-Guttmanovom kriteriju, koji objašnjava 55 % varijance u uzorku studenata i 65 % varijance na uzorku odraslih te je dobivena veličina komunaliteta čestice koja je samostalna mjera zadovoljstva životom 0,70 (studentski uzorak) i 0,77 (odrasli uzorak) i ona je procjena pouzdanosti te čestice (tablica 2).

## Valjanost

Za provjeru kriterijske valjanosti mjerenja zadovoljstva životom jednom česticom korišten je stupanj povezanosti između navedene čestice i Ljestvice zadovoljstva životom.

= 0.78 (five-point scale),  $\alpha_{O1} = 0.87$ , and  $\alpha_{O2} = 0.90$  (seven-point scale) respectively.

The reliability coefficient of single-item life satisfaction measurement determined using the correction for attenuation formula (58) was 0.64 for the student sample and 0.74 for the adult sample, and represents the minimal level of reliability.

Factor analysis is the other type of reliability evaluation for single-item measurement. Exploratory factor analysis was conducted and included the items from the Satisfaction with Life Scale together with the item that independently represents life satisfaction measurement. Before factor analysis was conducted, its preconditions were tested. The Kaiser-Meyer Olkin test for sampling adequacy, which shows the proportion of variance explained by latent factors, showed adequately high values ( $KMO_s = 0.84$ ;  $KMO_o = 0.90$ ) (59). Furthermore, Bartlett's test, which is used to establish whether there is a statistically significant difference between the correlation and the identity matrix, in which the correlations between variables are zero, was shown to be statistically significant ( $\chi^2_s = 1560.98$ ,  $df = 15$ ,  $p < 0.01$ ;  $\chi^2_o = 1269.11$   $df = 15$ ,  $p < 0.01$ ). These results justify conducting factor analysis on these samples and the associated data. Factor analyses were conducted using the method of principal component analysis. One factor was extracted on both samples using the Guttman-Kaiser criterion, which accounts for 55% of variance in the student sample and 65% of variance on the adult sample, thus providing item communality value, which represents an independent life satisfaction measurement. Its score was 0.70 (student sample) and 0.77 (adult sample), and it represents the reliability of that item (table 2).

## Validity

The degree of correlation between single-item life satisfaction measurement and the Satisfaction with Life Scale was used to evaluate the criterion validity of single-item life satisfaction measurement.



**TABLICA 2.** Dobivene vrijednosti komunaliteta za čestice Ljestvice zadovoljstva životom (SWLS) i česticu koja samostalno predstavlja mjeru zadovoljstva životom  
**TABLE 2.** Obtained communality values for the items of the Satisfaction with Life Scale (SWLS) and the item that independently represents life satisfaction measurement

|                                |  | Komunalitet<br>(studentski uzorak)<br>/ Communality<br>(student sample) | Komunalitet<br>(uzorak odraslih)<br>/ Communality<br>(adult sample) |
|--------------------------------|--|---|---|
| SWLS                           | Moj je život vrlo blizu onome što smatram idealnim.<br>/ My life is very close to what I consider ideal.                         | 0.592   | 0.774   |
|                                | Moji životni uvjeti su izvrsni. / My living conditions are excellent.  | 0.537   | 0.663   |
|                                | Zadovoljan/a sam svojim životom. / I am satisfied with my life.  | 0.701   | 0.787   |
|                                | Do sada sam ostvario/a važne stvari koje želim u životu.<br>/ So far, I have achieved important things I want in life.           | 0.402   | 0.533   |
|                                | Kad bih živio/la ispočetka, ne bih gotovo ništa promijenio/a.<br>/ If I lived my life again, I would not change almost anything. | 0.394   | 0.711   |
| Jedna čestica<br>/ Single item | Koliko ste sveukupno zadovoljni svojim životom?<br>/ How satisfied are you with your life overall?                               | 0.700   | 0.767   |

Korelacije između rezultata na Ljestvici zadovoljstva životom i mjere zadovoljstva životom jednom česticom, izračunate Pearsonovim koeficijentom korelacije na svakom uzorku posebno, su redom  $r_s = 0,70$  ( $p < 0,01$ );  $r_{01} = 0,82$  ( $p < 0,01$ ) i  $r_{02} = 0,80$  ( $p < 0,01$ ).

Provjera konstruktne valjanosti mjerenja zadovoljstva životom jednom česticom provedena je usporedbom povezanosti zadovoljstva životom mjenog jednom česticom i Ljestvicom zadovoljstva životom mjera ma psihičkog distresa. Kako smo u svakom uzorku koristili drugu mjeru psihološke uznemirenosti, detaljni rezultati prikazani su u tablici 3. Kako bi se provjerilo postoji li statistički značajna razlika između korelacija dviju mjera zadovoljstva životom s rezultatima na CORE-10, CORE-OM i DASS-21 upitnicima korištena je revidirana verzija Steiger Z koeficijenta ( $Z_H$ )(60). Kao što je prikazano u tablici 3, dobivena je statistički značajna razlika između dviju mjera zadovoljstva životom u njihovoj povezanosti s rezultatom na CORE-10 i CORE-OM upitniku. Snažniju povezanost s oba upitnika ostvaruje mjera zadovoljstva životom jednom česticom. Iako je isti trend prisutan i kod korelacije s DASS-21 upitnikom, ta razlika nije dosegla razinu značajnosti.

Correlations between the results on the Satisfaction with Life Scale and single-item life satisfaction measurement, obtained using Person's correlation coefficient on each sample independently, were  $r_s = 0.70$  ( $p < 0.01$ ),  $r_{01} = 0.82$  ( $p < 0.01$ ), and  $r_{02} = 0.80$  ( $p < 0.01$ ) respectively.

The evaluation of construct validity of single-item life satisfaction measurement was conducted by comparing the correlation of single-item life satisfaction measurement and the Satisfaction with Life Scale using measurements of psychological distress. Since a different measurement of psychological distress was used in each sample, detailed results are shown in table 3. In order to establish whether there is statistically significant difference between the correlation of two life satisfaction measurements with the results of CORE-10, CORE-OM, and DASS-21 questionnaires, a revised version of the Steiger Z coefficient ( $Z_H$ ) (60) was used. As shown in table 3, a statistically significant difference between two life satisfaction measurements was obtained regarding their correlation with the results of CORE-10 and CORE-OM questionnaires. Single-item life satisfaction measurement showed a stronger correlation with both questionnaires. Although the same trend is present in the correlation with the DASS-21 questionnaire, this difference did not reach the level of coincidence.

**TABLICA 3.** Povezanost mjera zadovoljstva životom i rezultata na upitnicima psihičkog distresa  
**TABLICA 3.** The correlation between life satisfaction measurements and the results obtained from questionnaires about psychological distress

|         | SZŽ / LS | Jedna čestica / Single item | Z <sub>H</sub> |
|---------|----------|-----------------------------|----------------|
| CORE-10 | -0.496** | -0.526**                    | 1.25*          |
| CORE-OM | -0.375** | -0.477**                    | 2.40**         |
| DASS-21 | -0.268** | -0.289**                    | 0.52           |

Legenda: \*\* p < 0.01, \* p < 0.05 / Key: \*\* p < 0.01, \* p < 0.05

## RASPRAVA

Cilj ovog rada bio je provjera valjanosti i pouzdanosti mjerenja zadovoljstva životom jednom česticom. Prije provjere metrijskih karakteristika uspoređene su vrijednosti deskriptivne statistike obiju mjera zadovoljstva životom.

Radi usporedbe s rezultatima dobivenim u drugim istraživanjima, dobivene aritmetičke sredine na obje mjere su pretvorene u postotak ljestvičnog maksimuma (%SM). Razina zadovoljstva životom mjerena Ljestvicom zadovoljstva životom iznosi 74,8 % SM na studentskom uzorku, te 62,3 % SM odnosno 66,6 % SM na odraslim uzorcima. Kada se zadovoljstvo životom mjerilo jednom česticom tada ono iznosi redom 78,8 % SM; 69,8 % SM te 74,7 % SM. Dobiveni rezultati ukazuju kako su sudionici u prosjeku zadovoljni svojim životom jer se dobiveni rezultati nalaze iznad ljestvične točke neutralnosti. Dobivene vrijednosti u skladu su s dosadašnjim istraživanjima provedenim na općoj populaciji. Prosječne vrijednosti zadovoljstva životom mjerene Ljestvicom zadovoljstva životom i jednom česticom nalaze se unutar teorijski očekivanog normativnog raspona od 60 % do 80 % ljestvičnog maksimuma koji nalazimo u zdravoj općoj populaciji (17,18). Također, dobivene razine zadovoljstva životom sukladne su s rezultatima istraživanja na uzorku hrvatskih studenata (61). Dobivene vrijednosti u skladu su i s Teorijom homeostaze subjektivne kvalitete živote spomenute u uvodu ovoga rada prema kojoj je vrijednost zadovoljstva životom koja se nalazi u pozitivnom dijelu ljestvice rezultat

## DISCUSSION

The aim of this paper was to evaluate the validity and reliability of single-item life satisfaction measurement. Before evaluating metric characteristics, descriptive statistics values of both life satisfaction measurements were compared.

For the purposes of comparison with results obtained in other studies, the obtained arithmetic means of both measurements were translated into percentages of the scale maximum (%SM). The level of life satisfaction measured using the Satisfaction with Life Scale is 74.8% SM for the student sample and 62.3% SM and 66.6% SM for the adult samples. Single-item life satisfaction measurements showed 78.8% SM, 69.8% SM, and 74.7% SM respectively. The obtained results indicate that the participants were, on average, satisfied with their life because the obtained results are greater than the scale neutral point. The obtained values are in accordance with previous studies conducted on the general population. The average values of life satisfaction obtained using the Satisfaction with Life Scale and single-item life satisfaction are within the theoretically expected normative range of 60-80% of the scale maximum found in the healthy general population (17,18). Furthermore, the obtained values of life satisfaction are also in accordance with the results of studies conducted on a sample of Croatian students (61). The obtained values are in accordance with the theory of subjective quality of life homeostasis mentioned in the introduction, according to which the value of life satisfaction found in the positive part of

djelovanja homeostatskog mehanizma koji je analogan mehanizmu održavanja krvnog tlaka ili tjelesne temperature koje se u normalnim okolnostima zadržavaju na optimalnoj razini za funkcioniranje organizma (19). Teorija pretpostavlja da je generalno pozitivni pogled na život neophodan za normalno funkcioniranje pojedinca, da se djelovanje homeostatskog mehanizma događa jer ljudi imaju koristi od pozitivnog pogleda na vlastiti život te da se mehanizmi održavanja životnog zadovoljstva unutar normativnih vrijednosti koje su optimalne za preživljavanja razvili tijekom evolucije (19).

Provjera pouzdanosti mjerenja zadovoljstva životom jednom česticom u ovom je istraživanju provedena na dva načina. Prvi način procjene pouzdanosti učinjen je korištenjem formule za korekciju zbog atenuacije temeljem koje je određena minimalna razina pouzdanosti koja iznosi 0,64 na studentskom i 0,74 na odraslom uzorku. Drugi način procjene pouzdanosti učinjen je korištenjem faktorske analize temeljem koje je dobivena pouzdanost veličine 0,70 (studentski uzorak) i 0,77 (odrasli uzorak). Dobivene vrijednosti u ovom istraživanju ukazuju na zadovoljavajuću razinu pouzdanosti mjerenja zadovoljstva života jednom česticom [s obzirom na kriterije pouzdanosti postavljene od Nunnally i Bernstein (62)]. U istraživanju provedenom na longitudinalnim podacima u četiri inozemne panel studije dobivene su procjene pouzdanosti u rasponu od 0,68 do 0,74 (63), a u istraživanju provedenom na uzorku studenata u kojemu je pouzdanost procijenjena korištenjem formule za korekciju zbog atenuacije dobivena vrijednost pouzdanosti je 0,68 (49). Dobivene pouzdanosti u našem istraživanju čak su i nešto više od do sada dobivenih u drugim istraživanjima.

Provjera kriterijske valjanosti mjerenja zadovoljstva životom jednom česticom učinjena je korištenjem stupnja povezanosti s Ljestvicom zadovoljstva životom. Dobivene su visoke po-

the scale is the result of the homeostatic mechanism, which is analogous to the mechanism of maintaining blood pressure or body temperature, which are kept at the optimal level for the functioning of the organism in normal circumstances (19). The theory posits that a generally positive life outlook is necessary for an individual's normal functioning, that the homeostatic mechanism operates because people benefit from a positive outlook on their own life, and that the mechanisms of maintaining life satisfaction within normative values which are optimal for survival developed during evolution (19).

Reliability evaluation of single-item life satisfaction measurement was conducted in two ways as part of this study. The first type of reliability evaluation was conducted using the formula for attenuation correlation, on the basis of which a minimal reliability level was determined, 0.64 for the student sample and 0.74 for the adult sample. The second type of reliability evaluation was conducted using factor analysis, on the basis of which the reliability values were 0.70 (student sample) and 0.77 (adult sample). The values obtained as part of this study indicate a satisfactory reliability level of single-item life satisfaction measurement (with respect to reliability criteria posited by Nunnally and Bernstein [62]). A study conducted on longitudinal data of four foreign panel studies the obtained reliability evaluation values ranged from 0.68 to 0.74 (63), and in a study conducted on a sample of students in which reliability was evaluated using the formula for attenuation correction the obtained reliability value was 0.68 (49). The reliability values obtained in our study are even somewhat higher than values obtained in previous studies.

The evaluation of criterion validity of single-item life satisfaction measurement was conducted using the degree of correlation with the Satisfaction with Life Scale. The re-

zitivne i statistički značajne povezanosti između mjerenja zadovoljstva životom jednom česticom i rezultata na SWLS ljestvici na sva tri uzorka  $r_s = 0,70$  ( $p < 001$ );  $r_{o1} = 0,82$  ( $p < 0,01$ ) i  $r_{o2} = 0,80$  ( $p < 0,01$ ). Veličina povezanosti u skladu je s onima dobivenim u prijašnjim istraživanjima, u kojima se povezanosti kreću od 0,57 do 0,80 (1,47-49). Ovi nalazi pokazuju da mjerenje zadovoljstva životom jednom česticom ima primjerenu kriterijsku valjanost.

Provjera konstruktne valjanosti mjerenja zadovoljstva životom jednom česticom učinjena je usporedbom povezanosti zadovoljstva životom mjerenog jednom česticom i rezultata na SWLS ljestvici s mjerama općeg psihičkog distresa. Dobivene su umjerene povezanosti između obih načina mjerenja kvalitete životom i mjera psihičkog distresa (tablica 3). Provjerom postojanja razlike između dviju mjera zadovoljstva životom u njihovoj povezanosti s korištenim mjerama distresa dobivena je statistička značajna razlika za mjeru CORE (na studentskom i prvom odraslom uzorku) na način da je snažniju povezanost s mjerama opće psihološke uznemirenosti ostvarila mjera zadovoljstva životom jednom česticom. Za mjeru DASS-21 razlika u povezanosti dviju mjera zadovoljstva životom s tom mjerom nije značajna, iako je uočen isti trend snažnije povezanosti za mjeru s jednom česticom. Dobiveni rezultati su u skladu s dosadašnjim istraživanjima. U istraživanju koje su proveli Arrindell i sur. (14) zadovoljstvo životom negativno je povezano s depresivnošću ( $r = -0,55$ ), anksioznošću ( $r = -0,54$ ) i općim psihološkim distresom ( $r = -0,55$ ). Istraživanje koje su proveli Larsen i sur. (15) ukazalo je na negativnu povezanost zadovoljstva životom i negativnog afekta ( $r = -0,31$ ). Rezultati istraživanja koji su proveli Cheung i Lucas (1) pokazali su negativnu povezanost između zadovoljstva životom i neuroticizma ( $r = -0,29$ ), i pozitivnu povezanost između zadovoljstva

sults showed high positive and statistically significant correlations between single-item life measurement and the results of the SWLS scale on all three samples:  $r_s = 0.70$  ( $p < 001$ ),  $r_{o1} = 0.82$  ( $p < 0.01$ ), and  $r_{o2} = 0.80$  ( $p < 0.01$ ). The correlation size is in accordance with the values obtained in previous studies, in which the correlation values range from 0.57 to 0.80 (1,47-49). These results show that single-item life satisfaction measurement has appropriate criterion validity.

The evaluation of construct validity of single-item life satisfaction measurement was conducted by comparing the correlation of single-item life satisfaction measurement and the results of the SWLS scale with measurement of general psychological distress. The obtained values showed moderate correlation between both types of life satisfaction measurement and the measurement of psychological distress (table 3). The evaluation of difference between the two types of life satisfaction measurement regarding their correlation with the employed measurements of distress provided a statistically significant difference for the CORE measurement (on the student and first adult samples), with single-item life satisfaction measurement showing stronger correlation with measurements of general psychological distress. In the case of DASS-21 measurement, the difference in the correlation of the two measurements of life satisfaction with this measurement was not significant, although the same stronger correlation with single-item measurement was identified. The obtained results are in accordance with existing studies. In a study by Arrindell et al. (14) life satisfaction is negatively correlated with depression ( $r = -0.55$ ), anxiety ( $r = -0.54$ ), and general psychological distress ( $r = -0.55$ ). A study by Larsen et al. (15) showed negative correlation between life satisfaction and negative affect ( $r = -0.31$ ). The results of a study by Cheung and Lucas (1) showed negative correlation between life satisfaction and neu-



životom i mjere mentalnog zdravlja na dva različita uzorka ( $r = 0,36$ ;  $r = -0,41$ ), pri čemu su povezanosti sukladne ako se zadovoljstvo mjeri s jednom česticom ili sa SWLS. U našem smo istraživanju dobili snažnije povezanosti kada se koristi mjera s jednom česticom što govori u prilog pretpostavci da je takva globalna mjera bolji pokazatelj aktualnog stanja. Drugim riječima, kada osoba procjenjuje zadovoljstvo životom na jednoj čestici, ta je procjena komprimirani pokazatelj subjektivne dobrobiti. U situacijama u kojima postoji neki negativni vanjski ili unutrašnji čimbenik, a postojeći mehanizmi nisu dostatni da ublaže i/ili kompenziraju njegovo djelovanje, dolazi do sloma homeostaze i smanjenja subjektivne dobrobiti. Takvi ekstremni čimbenici narušavaju homeostazu te dolazi do pada postotka ljestvičnog maksimuma ispod 60 (19). Stanje trajnog smanjenog zadovoljstva životom negativno je povezano s mentalnim zdravljem i svakodnevnim funkcioniranjem (64).

## Ograničenja i smjernice za buduća istraživanja

Ovo istraživanje ima nekoliko ograničenja koje valja spomenuti. Glavni nedostatak odnosi se na uzorke na kojemu je provedeno. Riječ je o prigodnim uzorcima. Uzorak koji je prigodno odabran podložan je brojnim nedostacima i ograničenjima u donošenju zaključaka, a rezultati dobiveni na takvom uzorku ne mogu se primijeniti na opću populaciju (65). Obilježava ga homogenost sudionika po dobi i obrazovanju kao i samoselekcija koja dodatno povećava vjerojatnost njihove međusobne sličnosti. Na smanjenu mogućnost generalizacije dobivenih rezultata ukazuje i mali udio muških sudionika. Bilo bi dobro buduća istraživanja pouzdanosti i valjanosti mjerenja zadovoljstva životom jednom česticom provesti na reprezentativnom uzorku. Provjera pouzdanosti u ovom istraživanju bila je ograničena transverzalnim nacrtom istraži-

roticism ( $r = -0.29$ ), and positive correlation between life satisfaction mental health measurement on two different samples ( $r = 0.36$ ;  $r = -0.41$ ), with the correlations being compatible if satisfaction is measured using a single item or SWLS. Our study showed stronger correlations for single-item measurement, which is in favour of the assumption that such general measurements are a better indication of the current condition. In other words, when an individual evaluates life satisfaction on the basis of a single item, this evaluation is a compressed indicator of subjective wellbeing. In situations where there is a negative external or internal factor, and the existing mechanisms are inadequate to mitigate and/or compensate for its action, there is a breakdown of homeostasis and a reduction of subjective wellbeing. Such extreme factors impair homeostasis and lead to a reduction of the scale maximum percentage below 60 (19). Permanent reduction in life satisfaction is negatively correlated with mental health and daily functioning (64).

## Limitations and guidelines for future research

This study has several limitations that should be mentioned. The main drawback is related to the samples. These are convenience samples. The sample that was conveniently selected is susceptible to numerous drawbacks and limitations in drawing conclusions, and the results obtained on such a sample cannot be applied to the general population (65). It is marked by homogeneity of participants according to age and education, as well as self-selection, which further increases the probability of their mutual similarity. A small number of male participants also indicates a reduced possibility of generalization of obtained results. Future studies of reliability and validity of single-item life satisfaction measurement should be conducted on a representative sample. In this study, the reliability evaluation was limited by the trans-

vanja. Prikupljanje podataka u jednoj vremenskoj točki onemogućilo je provjeru test-retest pouzdanosti koju bi bilo poželjno provjeriti u budućim istraživanjima. Također, ovakav nacrt istraživanja utjecao je i na mogućnost provjere određenih aspekata valjanosti, tj. onemogućio je provjeru prediktivne valjanosti mjerenja zadovoljstva životom jednom česticom koju bi također bilo poželjno ispitati u budućim istraživanjima.

Unatoč ovim ograničenjima, ovo je istraživanje polučilo važne rezultate. Prije svega, potvrdilo je dosadašnje inozemne nalaze koji su govorili o opravdanosti korištenja mjere jednom česticom za procjenu kvalitete života. Radi se o pouzdanoj i valjanoj procjeni, koja je jednostavna i razumljiva, te stoga primjenjiva kako u kliničkoj praksi, tako i u istraživanjima. Jednostavnije rečeno, ljudi mogu jednim brojem izraziti koliko su zadovoljni svojim životom, a ta procjena reflektira stanje psihološkog homeostatskog mehanizma. Ako se procjena kreće ispod 60 % ljestvičnog maksimuma, valja pretpostaviti da je došlo do teškoća u uspostavi psihološke ravnoteže, što može biti posljedica nekog akutnog događanja, ali i kroničnih psihičkih smetnji. Stoga je pitanje „*Koliko ste zadovoljni svojim životom kao cjelinom*“ dobro uključiti u rutinsku kliničku procjenu, jer će omogućiti trijažu osoba s aktualno ugroženim mentalnim zdravljem. Dodatno, rezultati ovog istraživanja potvrđuju nalaze dosadašnjih istraživanja oko mogućnosti korištenja ljestvice SWLS s dvije ljestvice procjene – one s pet i one sa sedam stupnjeva. Naši rezultati pokazuju da se na oba način dobivaju sukladni rezultati (50,51).

Mjera zadovoljstva životom jednom česticom trebala bi biti dio protokola u istraživanjima u području psihijatrije, kliničke psihologije i srodnih disciplina, što bi omogućilo vrlo ekonomičnu i razumljivu usporedbu različitih dijagnostičkih skupina, terapijskih ishoda, životnih uvjeta i ostalih važnih čimbenika.

versal outline of the study. Data collection at a single point in time precluded the evaluation of test-retest reliability, which should be evaluated in future studies. Furthermore, this study outline also affected the possibility of evaluating certain validity aspects, i.e. precluded the evaluation of predictive validity of single-item life satisfaction measurement, which should also be assessed in future studies.

Despite these limitations, this study showed important results. Firstly, it confirmed existing foreign results which showed that using single-item life satisfaction measurement was justified. This is a reliable and valid assessment which is simple and understandable, and therefore applicable in both clinical practice and research. To put it simply, people can use a single number to express how satisfied they are with their life, and this assessment reflects the state of the psychological homeostatic mechanism. If the assessment is below 60% of the scale maximum, it should be assumed that there were difficulties in achieving psychological balance, which can be a consequence of an acute event or chronic psychological disturbances. Therefore, the question “*How satisfied are you with your life overall?*” should be included in routine clinical evaluation because it can enable the triage of people with endangered mental health. Moreover, the results of this study confirm the findings of existing studies concerning the possibility of using the SWLS with two assessment scales – one with five and one with seven points. Our results show that both types achieve compatible results (50,51).

Single-item life satisfaction measurement should be part of the protocol in studies from the field of psychiatry, clinical psychology, and related disciplines, which would enable a very economical and understandable comparison of different diagnostic groups, therapeutic outcomes, living conditions, and other important factors.

Rezultati ovog istraživanja pokazuju da je korištenje jedne čestice za procjenu zadovoljstva životom psihometrijski opravdano. Dobivene su zadovoljavajuće razine pouzdanosti, te je potvrđena kriterijska i konstruktna valjanost takvog načina mjerenja kvalitete života. S obzirom na sve izraženiji trend korištenja kratkih, a psihometrijski zadovoljavajućih upitnika, koji bi bili prihvatljivi i za sudionike, ali i za istraživače, ovi rezultati upućuju na mogućnost korištenja jedne čestice za globalnu procjenu kvalitete života u istraživačkoj, ali i u kliničkoj praksi.

The results of this study show that using a single item for life satisfaction assessment is psychometrically justified. Satisfactory levels of reliability were obtained and both criterion and construct validity of this type of quality of life measurement were confirmed. With regard to the increasingly common use of brief, psychometrically satisfactory questionnaires which are acceptable to both participants and the researchers, these results indicate the possibility of using a single item for general assessment of quality of life in both research and clinical practice.

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