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A Validation Study of a Subjective and Objective Socioeconomic Status Scale

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Abstract. Objectives: The purpose of this study is to validate a subjective and objective socioeconomic measure to enhance research and clinical applications of socioeconomic (SES) constructs. To further understand the measurement of Socioeconomic Status (subjective and objective) in counseling, two main research questions are investigated. First, would objective indicators of SES (education, income, etc..) result in a separate construct from subjective indicators of SES (perceived SES, etc..) using social positioning and comparison items? Second, would the objective and subjective items correlate with the Macarthur's Scale SES? Methods: A Delphi Method was employed to develop a socioeconomic status with both objective and subjective SES items. The measure consists of 33 items including demographics (5), subjective (18), objective (2) SES status subscale and mental health (8) subscale. Two samples (*N*=455*)* were analyzed using Exploratory Factor Analysis (EFA). Results: The EFA's resulted in a three-factor solution: perception of SES; perception of one's ability to change their SES; and, objective SES. Conclusions: This study is consistent with the literature suggesting that objective and subjective SES are distinct variables. Improved methods and increased use of SES measures accounting for subjective and objective SES is needed.

Keywords: socioeconomic status (SES), subjective ses, objective ses, mental health, health

INTRODUCTION

A Validation Study of a Subjective and Objective Socioeconomic Status Scale

Socioeconomic status (SES) measurement research is constrained by definitions, constructs and the intersectionality of SES with other demographics such as race and gender (Cook, et al., 2020; Diemer, et al.; 2012). These constraints give rise to challenges of the consistent use of social class and SES as a variable of study (Liu, et al.; 2004) and have implications for how SES is measured (Lao, et al., 2013). Challenges in SES research is the lack of SES as a central variable, definition issues and measurement challenges (Cook, et aal., 2020; Liu, et al, 2004; Hawley; 2020). To address these gaps is to use and further develop SES measures and examine SES variables in research which is addressed in this study.

SES is a powerful determinant in education, housing, food security and housing, as well as healthcare. Financial barriers and social determinants impact one's ability to access mental health (Assari, 2017) and have positive clinical outcomes (Walker, et al., 2016; Dedania & Gonzales, 2019). Studies consistently show that the highest quality care and easy access goes to those with the most financial resources (Yang, et al., 2019; U.S. Department of Health and Human Services; 2022). In addition to income; systemic racism and sexism contribute to health disparities (Krieger; 2022). Financial barriers and low SES partially explain the disproportionate disparity of healthcare based on race and ethnicity (Milburn, et al., 2019). Healthcare gaps are rooted in identities such as race and gender which are impacted by historical systematic oppression and intergenerational economics (Walker, et al., 2016). The social sciences are often stymied and overwhelmed by the challenges of health disparity. The recent

pandemic highlights these disparities, specifically, a lack of access to care, healthcare coverage, high costs with an increase of mental health issues. Internationally, the World Health Organization found that high income countries doubled low-income countries in adequate pharmacology, psychotherapy and mental service utilization (Evans-Lacko, et al., 2018). SES research is essential to further understand health disparity partly due to economic inequality.

Mental Health and Socioeconomic Status Research

Historically, SES is not well represented in the counseling literature (Frable, 1997, Pope-Davis, etal., 2001; Liu, et al., 2004) compared with other identities such as race, gender, sexual orientation. The need for consistent terminology and measurement is broadly supported by meta-analyses accounting for the lack of SES as a primary construct of study in empirical data and the lack of consistent definitions and constructs (Cook, et al., 2020; Liu, et al., 2004). Over a 20-year span counseling and counseling researchers have implored the need for more studies focused on SES. Liu (2004), described the complexity of SES research due to variations in definitions, SES variables and methods. A follow-up study (Cook, et al., 2020) updating Liu's meta-analysis (2004) found that SES research continues to be at the bottom of counseling research agendas. Clark et al (2018) found a continuing lack of substantial SES research in counseling and found that may be a result of inconsistent terminology and variable type. If SES is used in counseling research it is narrowed to a demographic and an objective SES item, such as income or education which is often collected but may not be reported and is not commonly used as the main variable of study. This is problematic since the trajectory of SES and health is well documented and impacts clients. We are each born into a socioeconomic position which is contextualized by decisions and systemic layers related to employment, spending, savings, life events, and income levels; as well as, childhood messages about money, social and neighborhood economic behaviors and culture that impact our daily lives. To further tease out these complicated layers, measurements which align to subjective and objective measures is important to examine.

SES Measurement

The study of SES is challenging due to the lack of broad sampling inclusive of low to high incomes, lack of consistent measurements and the intersectionality of SES with demographics such as race and gender. This lack of uniformity in the use of SES variables or SES measurements in studies leads to researchers collecting SES data happenstance and not as a prime variable of study. Historical measures of SES used metrics based on wealth models, ie. income, salary; job categories and/or education level. Measuring SES within social science research often consists of a composite of SES indicators or solely wealth indicators. Early attempts were made to integrate these variables into tools such as the Hollingshead Index (1975) and Duncan's SEI (1961) which during the 70's and 80's were the common measures to examine SES in research, as well as, education and income. Duncan's SEI instrument uses occupational ranking based on education and income data and Hollingshead uses four factors including marital status, retired/employed status, educational attainment, and occupational prestige to capture SES variables. In the early 2000's health researchers emphasized economic positioning or subjective SES as an important SES construct in health research. This evolved to the development of the Macarthur SSS which moves away from low-middle-high SES income groups based on income to one's perception of their SES within a societal context. Most striking is the evidence that suggests subjective SES is more sensitive to mental and physical health outcomes than objective measures (Quon & McGrath; 2014). Subjective SES is found to pick up on how one perceives their economic lens as opposed to a static number such as an income level. Some researchers suggest that there are potential psychological processes which are a component of one's subjective Socioeconomic position (Tan, et al., 2020) compared to the static nature of objective SES (i.e. income and education). This study aims to expand the current research by the validation of a measure which examines objective and subjective and continue to explore the psychological processes influenced by SES.

Subjective and Objective Socioeconomic Status

Historically, objective SES measures such as educational level and income were

commonplace in the social sciences. Objective measures are based on factual reports of life circumstances (Tan, et al., 2020) as compared to subjective SES, which are based on one's perception of SES (Adler, et al., 2000). According to Shavers (2007), traditional measures such as occupation, education and income are not interchangeable but do capture a similar SES construct. Even within these constructs how they are measured may vary. For example, education may include years of education or degrees earned. Income may be defined as individual or household income. Macarthur's Scale of Subjective Social Status (SSS) was designed to measure subjective SES by using a 10-rung ladder in which participants self-report their position on the ladder compared to others using best off (money, education, jobs) at the top of the ladder and worst off (money, education, jobs) at the bottom of the ladder. Both objective and subjective SES have merits to measure SES in clinical research (Adler & Stewart, 2007). In general, measurements which more accurately depict an individual's SES are meaningful to further understand health disparities which are driven by factors such as race, gender and SES.

Purpose of this Study

The purpose of this study is to validate a measure which includes objective and subjective SES measures using a Delphi method followed by Exploratory Factor Analysis (EFA). The SES Measure includes demographics (age, race, gender), objective SES (income, employment, education) and subjective SES (perception of economic position, perception of economic security). In addition, I adapted the pencil and paper Macarthur SES to an online version for comparison purposes. I sought to answer the following research questions: Would objective indicators of SES (education, income, etc..) result in a separate construct from subjective indicators of SES (perceived SES, etc..)? Second, would subjective indicators of the new measurement correlate with the Macarthur Scale SES scale?

METHOD

The SES Measure was developed using a Delphi approach for item development and factor analysis to test the validity of the measure. The Delphi approach is used to build consensus among experts to solve complex issues (Vázquez-Ramos, et al., 2007). The Delphi-method includes phases allowing experts to contribute information about a topic with a systematic approach (Wester & Borders, 2014). The following steps were used in the initial subjective and objective subscale development: 1. An extensive literature review identifying categories of subjective and objective SES; 2. A two-round data collection procedure was employed using Qualtrics survey software (Qualtrics, 2005). The participants included a panel of identified experts based on peer-reviewed publication(s) on the topic of objective and subjective SES in cognitive, physical or mental health literature within the last 15 years.

The first round of the survey included administration of 30 items with both a scale of relatedness and open feedback on each subjective and objective SES item. The second round included a revised set of 18 items based on the first iteration with a Likert scale (*Strongly Disagree* to *Strongly Agree*) and open feedback on each item. The results were aggregated and summarized and reviewed for the construction of the final survey using text analysis and the results of the Likert scale. Demographics, objective, subjective and mental health items were added and a pilot was administered to finalize text construction. The resulting measure is a 33-item measure including demographics (5), subjective (18), objective SES (2) and mental health (8) subscales.

EFA is a recommended statistical procedure in the development of measurements to reflect meaningful constructs (Fabrigar & Wegener; 2012). According to Mvududu and Sink (2013), EFA helps to detect meaningful latent clusters of variables within data sets. The purpose of this study is to examine the psychometrics of the subjective and objective SES subscale and specifically, the subjective SES constructs.

Data was collected using a snowball sampling method with an online Qualtrics Survey and a Qualtrics Research Panel. The Qualtrics Survey was posted on the author's university website with a link titled Mental Health Socioeconomic Status Research and available on current student, alumni and department social media pages for wide distribution. A Qualtrics Panel was also used to survey participants. The Qualtrics panel which is a crowdsourcing method used in data collection includes the advantages of a more diverse sample to improve

generalizability (Mullen, et al., 2021) with racial and SES diversity for this study.

Participants

Visual inspection of the data shows missing data occurred at the start of the survey and at the start of the subjective and objective SES items. Surveys with 20% of the subjective and objective items missing were removed from the 600 survey attempts. A challenge of SES survey research is a dislike of divulging one's personal income and economic data (Davern, et al., 2005). To mitigate the impact of missing data, both samples are used and internal consistency and missing data patterns are analyzed.

A total of 455 participants completed the online measurement using a Qualtrics Panel (237) and a Non-Panel (218). Targeting a particular SES is helpful to understand the experience of SES groups, in particular, marginalized SES groupings (Wolff, etal 2010). Therefore, to obtain a robust economically sample, panel data centered on income and education levels at the lower strata items were targeted.

Sample 1 characteristics

The age range for the panel sample (Sample 1) was 18-78 (M=42, SD=15.92). Fifty one percent of the sample reported their gender as female and 49% male. The reported ethnicity of the sample is white (71%), Black (19%), Hispanic (9%), Middle East (1%), Asian (4%), Native American/Alaskan (4%), Multiracial (1%) and Other (1%). Two key indicators of objective SES are income and education levels. Participants were asked to report household income using 10 income ranges. The income distribution for this sample was positively skewed, with the largest portion (23%) reporting skewed, with the largest portion (23%) reporting an income below $5,000 a year and no one reporting an income higher than $45,000. Twenty seven percent indicated less than a high school diploma, high school degree or equivalent (38%) and some college and no degree (34%). Twenty one percent of the respondents reported currently receiving mental health services.

Sample 2 characteristics

The age range for the non-panel sample (Sample 2) was 18-75 (M=36, SD=13.34). Thirty eight percent of the sample reported their gender as female and 12% male. The reported ethnicity of the sample includes white (81%), Black (12%), Hispanic (5%), Middle East (3%), Asian (4%), Native American/Alaskan (1%), Multiracial (2%) and Other (1%). Compared to sample 1, this sample had a wider range of income responses (spanning from no income to over 85,000) but again the larger portions were in the lowest two categories, totaling 28% reporting less than $15,000 a year income. Two percent reported a high school degree or equivalent, some college and no degree (11%), associate degree (5%), bachelor's degree (26%), masters degree (33%), professional degree (1%), doctorate degree (23%). Twenty nine percent of the respondents reported currently receiving mental health services.

Procedure

Participants were informed of the purpose of the Institutional Review Board-Approved study to validate a measurement for objective and subjective SES. Qualtrics (2005) and SPSS version 25 (2017) were used to distribute and analyze the data. Participants consented to a cover page describing confidentiality and confirmation that they were 18 years and older. Once participants consented, they were invited to complete the survey.

Measurements

The measure consists of 33 items including demographics (5), subjective (18), objective (2) SES status subscale and mental health (8) subscale. Objective items included forced choice questions related to income and education. Subjective SES items required participants to respond to questions using the categories *Low, Moderately Low, Moderate, Moderately High and High.* Examples of items include *My future economic position will be; My economic position compared to my friends is, My economic position compared to others my age is* etc... Data on the well-established Macarthur Subjective Social Status Scale (Singh-Manoux; 2005) were also collected to provide an additional indicator of subjective SES and assess whether they are measuring similar constructs. The Macarthur Scale of Subjective Social Status (Adler & Stewart; 2007) is a 10 rung ladder which asks the question *At the top of the ladder are people who are the best off, those who have the most money, most education, and the most respected jobs, or no job. Please choose the number that best represents where you think you stand at this time in your life relative to other people in the United States.* Using an online scale from 1 to 10 was used for respondents to indicate

their position. The Macarthur Scale shows good test re-test reliability using Spearman's rank-order correlations with a comparison of baseline and follow-up of p=.62 (p<0.01).

Internal data consistency

Little's Missing Completely at Random (Mcar) test was completed on the combined samples to examine if the missing data was at random or patterned (Little, 1988). The results of the Mcar test indicate that data were missing at random x^2=143.711 (DF=140, Sig.=.398). Chronbach' Alpha of the 18 subjective and objective items was completed to assess reliability. Cronbach's Alpha for the 18 items was above the common accepted range of .70 to .95 (Tavakol & Dennick, 2011) at .902. The item *current level of debt* was removed with a corrected item-total correlation below the recommended .2. Following, the removal of *current level of debt* Chronbach's Alpha was .905 which is above the acceptable range a total of 17 subjective items were analyzed using EFA.

RESULTS AND DISCUSSION

Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) was performed to check if the 17 items in the measure loaded together for the combined samples. The results of Bartlett's test of sphericity was $x^2(136)$= 5024.380 was significant at the .005 level. The Kaiser-Meyer-Olkin measure is .932 indicating adequate sampling. The EFA with a principal-axis factor analysis with promax rotation was completed with factors below .40 excluded. The analysis resulted in a 3-factor solution. Two cross loaded items below .05 were removed. The 3-factor solution accounted for 51%, 9% and 7% respectively for a total of 67% variance. Factor 1 (F1; 12 items) was labeled *Perception of Individual's SES compared to Others.* This factor measures one's perception of their own SES in comparison to others or for the purpose of this study subjective SES items. Factor 2 (F2; 3 items) *Perception of One's Ability to Change their SES.* This factor measures one's perception of their ability to change their future SES. Factor 3 (Factor 3; 2 items) was labeled *Objective SES*. This factor measures traditional objective SES levels including income and education.

To review whether the EFA results were consistent with the two samples treated independently, two EFA's were run (Sample 1 and Sample 2).

Sample 1 Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) was performed with the Panel Sample (Table 1 and Table 2). The results of Bartlett's test of sphericity was $x^2(136)$=2272.392 which was significant at the .005 level. The Kaiser-Meyer-Olkin of Sampling Adequacy is .920 above .60 the acceptable level to proceed with a factor analysis. The EFA also resulted in a 3-factor solution with Factor 1 (F1; 12 items); Factor 2 (F2; 3 items) and Factor 2 (F3; 2 items) explaining 63% of the variation. The 3-factor solution accounted for 47%, 9% and 7% respectively for a total of 63% variance. Factor 1 (F1; 12 items); Factor 2 (F2; 3 items) and Factor 2 (F3; 2 items).

Sample 2 Exploratory Factor Analysis

An Exploratory Factor Analysis (EFA) was performed on the subscales with the non-panel sample (Table 1 and Table 2). The results of Bartlett's test of sphericity was $x^2(136)$=2130.663 significant at the .005 level. The EFA with a principal-axis factor analysis with promax rotation was completed with factors below .40 excluded. The analysis resulted in a 3-factor solution (Table 2). The 3-factor solution accounted for 44%, 11% and 8% respectively for a total of 63% variance. Factor 1 (F1; 12 items); Factor 2 (F2; 3 items) and Factor 3 (F3; 2 items) explaining 63% of the variation.

Comparing Sample 1 and Sample 2 Results

Generally, the structures of the EFA's for Sample 1 and Sample 2 align similarly in factor structures with a few differences. In the non-panel , *My economic position compared to other family members not within my household* factored in the *Objective SES* (.551) factor, whereas in the panel sample the item aligned with the *Perception of Individual's SES Compared to Others*. In the non-panel, *My economic position compared to others living in my neighborhood* factored in the *Perception of One's Ability to Change their SES* (.512), whereas in the panel sample the item aligned with *Perception of Individual's SES Compared to Others*.

Item-Consistency of the SES Measure and Macarthur's Ladder

To determine the item-consistency between samples on the SES and Macarthur Ladder measures two Kendall's Taus were

completed. Kendall Tau is a nonparametric measure which uses rank order to assess the item-consistency of items. A rank order comparison between the order of items of the Macarthur Scale and the SES measure revealed a range of item consistency from r_c =.262 at p=.001 to r_c =.506 at p=.001. The lowest coefficient was *My ability to change my economic position* and the highest coefficient was *My ability to cover daily living expenses*. The results indicate moderate to a strong relationship between the SES measure and the Macarthur Scale.

Table 1. Comparing the Factor Structure of Items Assessing Socio-Economic Status Between Samples 1 and 2, Unrotated Solution

Item	*Perception of Individual's SES compared to Others*		*Perception of One's Ability to Change their SES*		*Objective SES*	
	Panel	**Non-Panel**	**Panel**	**Non-Panel**	**Panel**	**Non-Panel**
My economic position compared to other family members not within my household	.815	.712	--	--	--	--
My economic position compared to others my age	.803	.725	--	--	--	--
My ability to cover unexpected expenses	.802	.805	--	--	--	--
My economic position compared to my friends	.795	.705	--	--	--	--
My level of savings	.787	.700	--	--	--	--
My economic position compared to others I work with in the same job category	.775	.587	--	--	--	--
My ability to cover daily living expenses	.775	.811	--	--	--	--
My economic position compared to others living in my neighborhood	.760	.561	--	--	--	--
If I lost my current income my ability to cover daily living expenses for 3 months would be:	.747	.749	--	--	--	--
My ability to cover unexpected healthcare expenses	.752	.824	--	--	--	--
My economic position	.691	.802	--	--	--	--
Macarthur Scale	.636	.692	--	--	--	--
My future economic position will be:	.614	.533	.573	.429	--	--
My ability to change my economic position	.514	--	.754	.775	--	--
My ability to control my economic position	.595	.502	.645	.670	--	--
Individual Earned Income the last 12 months	.541	--	--	--	.715	.625
What is the highest degree or level of school	.451	--	--	--	.669	.629

Note-- indicates that the loading in that cell for that factor was less than .40

Table 2. Comparing the Factor Structure of Items Assessing Socio-Economic Status Between Samples 1 and 2, Rotated Solution

Item	*Perception of Individual's SES compared to Others*		*Perception of One's Ability to Change their SES*		*Objective SES*	
	Panel	**Non-Panel**	**Panel**	**Non-Panel**	**Panel**	**Non-Panel**
My ability to cover unexpected expenses	.830	.878	--	--	--	--
My economic position compared to other family members not within my household	.810	--	--	--	--	.551
My level of savings	.787	.867	--	--	--	--
My economic position compared to others my age	.803	.600	--	--	--	--
My economic position compared to my friends	.795	.526	--	--	--	--
My ability to cover unexpected healthcare expenses	.752	.827	--	--	--	--
My ability to cover daily living expenses	.775	.700	--	--	--	--
If I lost my current income my ability to cover daily living expenses for 3 months would be	.747	.848	--	--	--	--
My economic position compared to others living in my neighborhood	.760	--	--	.512	--	--
My economic position compared to others I work with in the same job category	.775	.444	--	--	--	--
My economic position	.691	.626	--	--	--	--
Macarthur Scale	.636	.437	--	--	--	--
My ability to change my economic position	.614	--	.754	.848	--	--
My ability to control my economic position	.514	--	.645	.820	--	--
My future economic position will be:	.595	--	.754	.646	--	--
Individual Earned Income the last 12 months	--	--	--	--	.715	.860
Highest degree or level of school	--	--	--	--	.669	.842

Note-- indicates that the loading in that cell for that factor was less than .40 with the exception of two cross loaded items below .50 in the Convenience Sample *My economic position compared to other family members not within my household (.418) and My economic position (.479)*

Discussion

The purpose of this study was to assess the psychometric properties of a SES scale with both subjective and objective constructs. Subjective SES is shown to have increased sensitivity to physical and mental health outcomes (Singh-Manoux et al., 2005) and psychological characteristics unique to objective SES (Tan, et al., 2020). The measurement was developed to further explore one's understanding of their perceived SES position in comparison to others and continued use of traditional objective measures. Overall, the results indicate strong psychometric properties of the subjective and objective subscale. Factors *Perception of Individual's SES compared to Others; Perception of One's Ability to Change their SES and Objective SES* were consistent across both samples and with the samples combined. The first factor consisting of subjective SES items was particularly robust explaining the overall variance.

In addition, the subjective items consistently aligned with a Macarthur's' Ladder, a common measure used to measure subjective SES. The Macarthur Scale of Subjective Social Status measures where one thinks their position is based on income/education relative to others by positioning themselves on a ladder (Adler, 2000). Similarly, the *Perception of Individual's SES compared to Others* items asked participants to compare themselves to others within their daily lives (work, family, neighborhood). Both constructs tap into an economic comparison between self and others. The results also indicate a moderate to strong relationship between the SES measure and the Macarthur measure.

The results are consistent with the findings (Navarro-Carrillo, et al. 2020) that subjective SES captures different constructs than objective SES. The colloquialism *keeping up with joneses* may have merit as far as one's perception of their SES. When asked to ascribe one's subjective economic position there is a comparison component.

The Sample 1 had two items which did not factor similarly to Sample 2. Both items asked participants to compare their economic position to either *other family members not within my household* or *others in my neighborhood*. Interestingly, the items share a social comparison to close relations within a community (family and neighbor). Both items are considered to have a moderate relationship (.5) to the construct compared to the majority of the items with high correlation properties. Nonetheless, closer examination of these differences is beneficial. Subjective SES measures like the Macarthur Ladder ask participants to place their social position in comparison to how a society is set up. The measure asks participants to compare SES in a variety of contexts such as neighborhood, family and job category. The measure examines potential referent groups within a more global indicator. Wolff, et al. (2010) suggests there may be a benefit of studying referent groups such as occupational groups when examining SES. In addition, one variable may have direct or indirect impact on another variable. For example, education influences health directly; and indirectly influences occupation and income (Singh-Manoux, et al., 2002) which also has an impact on health. Further research to understand referent groups within subjective SES may assist in expanding our understanding of the psychological affect of SES on health.

One unexpected outcome in the results is the strength of the factor *Perception of One's Ability to Change their SES* as a construct. The three items in this factor are focused on control, change and forecasting future economic position. This raises the potential to further investigate whether an individual's improved sense of economic control improves clinical outcomes. For example, research has shown that during severe economic downturns there are increased percentages of economic related suicides and attempts (Chang, et al., 2013). Therefore, if a client experiences an increased sense of control of their SES or improved outlook does this contribute to more positive mental health during an economic change.

The objective SES constructs income and education is consistent with the literature. The measure continues to bear out that education and income correlate with each other but are tapping into a different construct than subjective SES (Singh-Manoux, et al., 2005). As we move to consider subjective SES as a valid variable to measure and use in research, we must also consider that when studying SES, objective measures such as education and income continue to merit consideration as a meaningful demographic.

Limitations

The use of convenience samples presents limitations to generalizability due to the heterogeneity of the sample. In addition, the self-

report of SES may dissuade participants to disclose income and socioeconomic position (Davern, et al., 2005).

Conclusions

The purpose of this study is to further explore the measurement of socioeconomic status, specifically subjective and objective SES. Early research and this study suggest that subjective SES is an independent construct. Researchers need to consider both objective and subjective SES measures to improve the understanding of SES and its implications for client's mental health. SES and demographics such as race and gender are embedded due to policies meant to marginalize and oppress groups, economically. Therefore, intersectionality models which include demographics inclusive of SES in research designs attune to both constructs are needed. The trend toward a composite of objective and subjective SES is gaining strength as a more meaningful picture of one's SES in both actuarial and socially perceived economic position.

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