SOCIAL-EMOTIONAL RESOURCES, PSYCHOLOGICAL WELL-BEING AND PERCEIVED SOCIAL EQUITY: IMPLICATIONS FOR SUSTAINABLE HUMAN DEVELOPMENT

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Abstract: Psychological well-being is shaped by personal and relational resources as well as perceptions of the social environment, yet these domains are often examined separately. This study examined the cross-sectional association of the two using the Chinese General Social Survey (CGSS) 2021. A total of 8,148 respondents were present in the source file and the number of cases for the prespecified focal variables was 2,363. Social resources included a four item connectedness index, generalized trust and reduced perceived exploitation risk, and emotional resources included goal based motivation, positive self-regard and emotional recovery. One item that measured perceived social equity was directly related to the concept of social equity. Psychological well-being was measured with a three item proxy composite (Cronbach's alpha = 0.827) of reverse-scored distress and functioning indicators, and current happiness was considered as a secondary outcome. Pearson correlations and HC3 robust ordinary least-squares models were estimated. The primary model accounted for 19.2% of variance and the maximum adjusted association was with emotional recovery (beta = 0.315, 95% CI [0.272, 0.357]). Positive self-regard, goal-based motivation, generalized trust, and perceived social equity also were positively associated, while social connectedness and decreased exploitation risk did not show an independent association. The main intrapersonal pattern remained in the covariate-adjusted sensitivity analysis and was dampened in the raking-weighted primary-outcome sensitivity model. The results support the notion that social-emotional resources are diverse and suggest that perceptions of social fairness are a model-sensitive concurrent correlate of well-being. The cross sectional design does not be able to determine causality, mediation, population level effects or sustainable human development (as a measured outcome).

Keywords: social connectedness; generalized trust; emotional recovery; societal fairness; subjective well-being; China; cross-sectional survey.

1. Introduction

Psychological wellbeing is not just a lack of distress, but also the resources that people have when they receive demands, how they relate to others, and how they deal with negative events. The evidence of the Chinese and cross-cultural nature is recent and shows that, for mental-health or well-being, perceived social support, emotionally adaptive capacities, motivational resources are associated with positive mental outcomes [1-4]. As shown in related work in China, external support and internal resilience can take place simultaneously, not alternatively [5-9] and there is a meta-analysis linking emotional competence to subjective well being, and the latter is measured by Chinese samples [10]. The results of this study are consistent with a resource-based theory where social connectedness and trust are seen as relational resources and goal directed motivation, positive self-regard, and emotional recovery as intrapersonal resources. The difference is a practical one. Contact can be frequent and not accompanied by general trust and positive self-regard can exist, even when it is hard to recover from negative experiences. Each of these indicators, therefore, should not be viewed as a single psychometric scale, as this would make it difficult to reveal meaningful heterogeneity. This differentiation is also relevant for sustainable social development since sustainable human development is not only about total economic benefits but also about the conditions under which individuals are able to maintain psychological functions and to engage in social life. The term social-emotional resources is therefore used in the plural in the present study, as well as keeping the resource indicators separately when data do not warrant a common reflective scale.

The evaluative dimension is added to perceived social equity. The level of generalized trust and support of institutions relate to subjective appraisal of the reliability and legitimacy of the surrounding social order, but not to the actual quality of the institutions [11-13]. Evidence from the organizational environment also suggests a relationship between perceptions of fairness and justice and health and well-being, as well as trust and work attitudes [14-18]. Conceptually adjacent, but not direct measures of societal fairness, is important to note because it is a question asked in the CGSS item used here: is the society at large fair? This study does not make the claim that no studies have examined social resources, emotional resources, fairness and well-being, it is rather the empirical gap that no study has explicitly examined the relationship between social resources, emotional resources, fairness and well-being in the context of autism. Instead, they are often examined in separate literatures or with measures that are aggregated into general indices. This study explores the possibility of coherent, but non-uniform relationships, between distinct social and emotional resources, a direct perception of societal fairness, and psychological well-being in a single wave of data from the CGSS 2021. (RQ1) Is it possible to defend the use of the selected CGSS items for measuring the title constructs? How are social-emotional resources and social equity and well-being related bivariately? (RQ3) What are the psychological well-being resources that continue to be uniquely associated with psychological well-being when controlling for the other resources? (RQ4) Does the pattern converge if happiness at a specific time is taken as a secondary outcome? The analytical framework is summarized in figure 1. The specification details of the reported regression models are indicated by solid arrows and should not be viewed as causal pathways. Bivariately rather than a directionality model, the relationships between the resource indicators and perceived social equity were assessed. Sustainable human development is placed only as the wider meaning of interpretation since it is not measured in the variables analyzed.

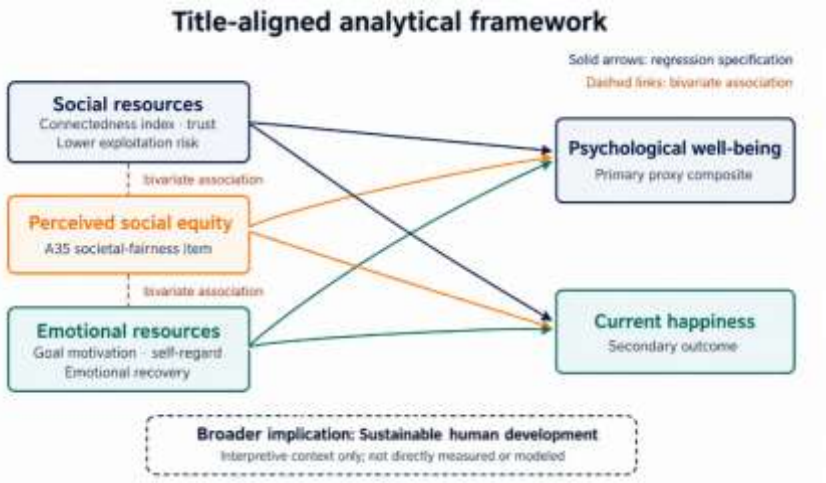

Figure 1. The figure shows the framework for analyses that line up with the title. Solid arrows mark the predictors put into the regressions for well being and happiness while dashed links cover the associations with social equity. It seems the arrows are only about model setup and not meant to show any causation. Sustainable development comes across as a wider idea they mention but did not measure or model as an outcome.

2. Materials and methods

2.1. Study design and data source

This study is a secondary analysis of the Chinese General Social Survey (CGSS) 2021 as a cross sectional study. The data analyzed has been archived and is accessible from Figshare [19]. The data set uploaded to Stata was 8,148 respondents by 700 variables. Primary analyses were carefully limited to variables reflecting the constructs for focus of the title. Two different sensitivity analyses were performed to assess robustness without altering the construct definitions: a covariate adjusted sensitivity model and a raking-weighted sensitivity model. The primary regression coefficients should thus be interpreted as construct-level "conditional" associations and not as "fully adjusted" causal or population average effects.

2.2. Study population and analytical sample

There were 8,148 respondents in the starting file. There were some cases of prespecified focal variable-related item nonresponse, while not all respondents were provided with detailed D-module items that could be used to

assess emotional resources and psychological well-being. The values 98 and 99 were treated as missing data along with values outside of the range of substantiated responses were recorded. Complete case analysis across the seven focus predictors, primary psychological well-being outcome and secondary happiness outcome resulted in n = 2,363. There were no duplication, generation or synthesis of observations. Valid age, sex, education, personal income, and self-rated health, as well as being partnered and having hukou, were required for the covariate-adjusted model of primary-outcome sensitivity, which resulted in n = 2,112. A sensitivity analysis provided by the CGSS was used on unweighted primary models. A sensitivity analysis was conducted using the raking weight (weight_raking) provided by the CGSS. Primary sensitivity and primary-sampling-unit corrections have not been applied and thus the primary and weighted sensitivity estimates are not deemed to be fully design-based national population parameters. Table 1 presents the summary of study variables, operational definitions, directions of the scores, and the function of the variables in the analysis.

Table 1. Study variables, operational definitions, and analytical roles.

Construct	Variable	Item content	Scoring direction	Use
Social connectedness	A30_6	Gatherings with non-co-resident relatives	Reverse-coded; 0-100	Connectedness index
Social connectedness	A30_7	Gatherings with friends	Reverse-coded; 0-100	Connectedness index
Social connectedness	A31a	Social/recreational interaction with neighbours	Reverse-coded; 0-100	Connectedness index
Social connectedness	A31b	Social/recreational interaction with friends	Reverse-coded; 0-100	Connectedness index
Generalized trust	A33	Belief that most people in society can be trusted	Higher = greater trust	Separate predictor
Lower exploitation risk	A34	Belief that others may take advantage of respondent	Reverse-coded	Separate predictor
Perceived social equity	A35	Overall perception of whether society is fair	Higher = fairer perception	Separate predictor
Psychological well-being proxy	D16_c	Unhappy or depressed in previous four weeks	Reverse-coded	Primary composite
Psychological well-being proxy	D16_d	Loss of self-confidence in previous four weeks	Reverse-coded	Primary composite
Psychological well-being proxy	D16_e	Unable to overcome difficulties in previous four weeks	Reverse-coded	Primary composite

Construct	Variable	Item content	Scoring direction	Use
Goal-based motivation	D35_3	Life goals provide encouragement rather than discouragement	Higher = greater resource	Separate predictor
Positive self-regard	D35_12	Positive regard for own personality	Higher = greater resource	Separate predictor
Emotional recovery	D35_18	Slow recovery after an unhappy experience	Reverse-coded	Separate predictor
Current happiness	D36	Current happiness, 0-10	Higher = greater happiness	Secondary outcome

Note. All analyzed indicators were linearly rescaled to 0-100. This rescaling does not change Pearson correlations or standardized regression coefficients.

2.3. Variables and measurement

Social connectedness was measured as the average of four variables measuring contact and interaction, namely: A30_6 (gatherings with non-co-resident relatives), A30_7 (gatherings with friends), A31a (social or recreational interaction with neighbours), and A31b (interaction with friends, similar to neighbours). The higher the a value, the more often it is encountered. The resulting four-item measure is not a validated latent social-connectedness scale, but instead is viewed as a contact-frequency index. The two items for perceived social resources (A33 and A34) did not demonstrate adequate internal consistency to support a common reflective scale, so they were retained as separate indicators of social resources.

The goal-based motivation (D35_3) and positive self-regard (D35_12) were measured on a single item each as emotional or intrapersonal resources, while emotional recovery (reverse coded for D35_18) was measured in a single item. These were not reported as validated psychometric scales, and were not summed together as they had low internal consistency when used together. The construct of perceived social equity was measured by a one-item measure: respondents' views about whether society today is fair or unfair (A35). Outcomes it directly measures are related to the perceived (but not objective) distribution of fairness, of procedures, of institutions, and of opportunities. Psychological well-being was measured as a study-specific proxy measure composite, which was derived from three recent psychological functioning/distress measures: unhappiness or depression (D16_c), loss of self-confidence (D16_d) and feeling unable to overcome difficulties (D16_e). The items were reverse-scored (higher scores = better psychological functioning) and then averaged. The composite exhibited satisfactory internal consistency (Cronbach's alpha = 0.827), but should not be viewed as a fully comprehensive validated well-being measure. Current levels of happiness (D36) was kept as a conceptually separate secondary outcome. The measurement-quality assessment and construct-handling decisions are presented in Table 2.

Table 2. Measurement quality and construct-handling decisions.

Measure	Items	Cronbach alpha	Analytical decision
Social connectedness	A30_6, A30_7, A31a, A31b	0.647	Modest consistency; use as descriptive index, not validated latent scale
Trust pair	A33, reverse A34	0.333	Insufficient for a common scale; retain separately

Measure	Items	Cronbach alpha	Analytical decision
Emotional resources	D35_3, D35_12, reverse D35_18	0.319	Heterogeneous indicators; retain separately
Psychological well-being proxy	reverse D16_c, D16_d, D16_e	0.827	Good consistency; average as primary outcome

2.4. Data preprocessing

Documented substantive range of values was used for each selected focal variable. The reverse coded items were recoded to include higher scores for more of the named resource as well as more perceived fairness and/or higher levels of well-being, while focal indicators were linearly transformed to range from 0 to 100. If all the items in an indicator were valid, an average was calculated; otherwise, the average was not calculated. Partial-score rule and imputation was not used. Complete cases for all the focal predictors and both the well-being outcomes were used to create the primary regression sample. For the covariate sensitivity model, the age parameter was calculated from the birth year, but restricted to the age range 18-100 years; education was classified as primary or less, junior middle, upper secondary/vocational, or tertiary; and the personal-income nonresponse codes (9999996-9999999) were coded as missing values prior to the log(1 + income) transformation. Education was classified as primary or less, junior middle, upper secondary/vocational, or tertiary; person income nonresponse codes 9999996-9999999 were assigned as missing data before log(1 + income) transformation; self-rated health was classified as valid values 1-5; and the "cohabiting" and "married" status of having a partner were combined. Other codes were excluded from the sensitivity model; Hukou was classified as agricultural/rural (codes 1 or 3) or non-agricultural/urban (codes 2 or 4). Focal observations were not dropped as outlier observations.

2.5. Statistical analysis

Descriptive statistics were used to summarize the focal scores 0-100. Cronbach's alpha was used to evaluate internal consistency for proposed sets of items (to be treated as composites) and bivariate associations were estimated using Pearson correlation coefficients. The primary inferential analysis was a standardized ordinary least-squares (OLS) model of psychological well-being including the simultaneous inclusion of social connectedness, generalized trust, lower exploitation risk, goal-based motivation, positive self-regard, emotional recovery and perceived social equity. The focus set of analysis predictors was the same as in the convergent robustness outcome to current happiness. Other factors included in a covariate adjusted sensitivity model for the primary outcome were age, sex, four-category education, log transformed personal income, self-rated health, and partnership status and urban/non-agricultural hukou. The other weighted least-squares sensitivity model employed the CGSS raking weight (weight_raking) and is viewed as a robustness check only since it did not have the various components of complex survey design. All variables and outcomes at the focus were scaled before estimating. All analysis was performed using HC3 heteroscedasticity-consistent standard errors and 95% confidence intervals and two-sided p values were reported wherever applicable. Python 3.13.5, pandas 2.2.3, NumPy 2.3.5, SciPy 1.17.0 and statsmodels 0.14.6 were used for analyses, and Matplotlib 3.10.8 was used for figure preparations.

2.6. Model assumptions and diagnostics

All predictors were checked for variance inflation factors and the largest VIF was 1.17, there was no evidence of any material multicollinearity. The Breusch-Pagan tests showed that there was heteroscedasticity in the psychological well-being model (LM = 147.50, $p < .001$) and the happiness model (LM = 88.03, $p < .001$). The HC3 robust standard errors was thus kept as the main uncertainty estimator. Since the focus of the inferences was on the conditional mean associations with robust standard errors in a large analytical sample, no normality test was used as a gatekeeper for OLS. The design is still cross-sectional; there is no temporal precedence as regression ordering is an analytical specification.

3. Results and discussion

3.1. Descriptive statistics and measurement assessment

The total number of respondents that participated in the complete case focal sample totaled to 2,363. The three D16 items were used as the primary outcome proxy because the psychological well-being proxy composite had the best internal consistency (alpha = 0.827) of the candidate composites. The internal reliability of the social connectedness was modest (alpha = 0.647), and therefore is interpreted as a contact frequency index and not a validated latent construct. There was no support for aggregation with the trust pair (alpha = 0.333) and emotional-resource set (alpha = 0.319). This is similar to considering the indicators that were analyzed under the social-emotional umbrella as diverse social-emotional resources instead as one coherent social-emotional reflective scale. Descriptive statistics of the full sample for analysis (cases with no missing values) are presented in Table 3.

Table 3. Descriptive statistics for the complete-case analytical sample (n = 2,363).

Variable	n	Mean	SD	Min	Max
Social connectedness	2,363	37.84	20.17	0	100
Generalized trust	2,363	65.13	24.99	0	100
Lower exploitation risk	2,363	51.59	28.40	0	100
Goal-based motivation	2,363	74.05	16.28	0	100
Positive self-regard	2,363	67.74	22.44	0	100
Emotional recovery	2,363	62.11	27.14	0	100
Perceived social equity	2,363	61.05	23.86	0	100
Psychological well-being	2,363	76.74	20.47	0	100
Current happiness	2,363	67.93	19.49	0	100

Note. All scores are 0-100 with higher values representing more of the named construct. These scores are not population norms and are not percentages of sustainable human development.

3.2. Bivariate relationships

Several positive bivariate associations were observed that were expected, but not uniform. Emotional recovery was the most strongly associated with psychological well-being ($r = 0.363$, $p < .001$), while social connectedness showed essentially no relationship with the primary construct for psychological well-being ($r = 0.017$, $p = .413$). Perceived social equity was somewhat correlated with generalized trust ($r = 0.337$, $p < .001$). There was a positive correlation between perceived social equity and psychological well-being ($r = 0.198$, $p < .001$) and happiness ($r = 0.204$, $p < .001$). The difference between contact frequency and trust indicates that frequency of contact and trust should not be considered synonymous measures of social resources. The bivariate associations among the focal predictors, perceived social equity, psychological well-being and current happiness are presented in Table 4.

Table 4. Bivariate associations with perceived social equity and well-being outcomes.

Predictor	r with equity (p)	r with psychological well-being (p)	r with happiness (p)
Social connectedness	0.029 (.156)	0.017 (.413)	0.101 (<.001)
Generalized trust	0.337 (<.001)	0.175 (<.001)	0.129 (<.001)
Lower exploitation risk	0.173 (<.001)	0.084 (<.001)	0.105 (<.001)
Goal-based motivation	0.134 (<.001)	0.193 (<.001)	0.167 (<.001)
Positive self-regard	0.057 (.006)	0.178 (<.001)	0.204 (<.001)
Emotional recovery	0.128 (<.001)	0.363 (<.001)	0.275 (<.001)
Perceived social equity	-	0.198 (<.001)	0.204 (<.001)

Figure 2 visualizes the Pearson correlation profile for the focal variables.

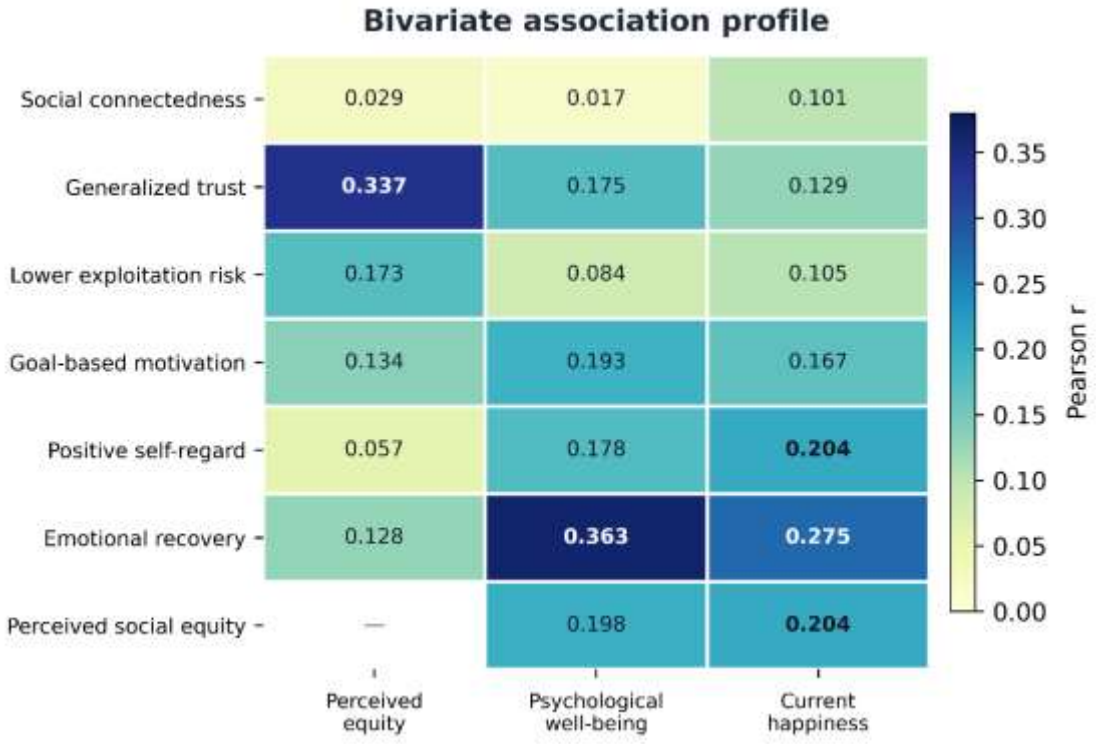

Figure 2. Pearson correlation profile for the focal variables. The equity-to-equity cell is intentionally omitted.

3.3. Multivariable associations with psychological well-being

The basic standardized OLS model explained 19.2% (R2 = 0.192; adjusted R2 = 0.190) of psychological well-being. Emotional recovery had the largest coefficient (beta = 0.315, 95% CI [0.272, 0.357], p < .001). In addition, perceived social equity (beta = 0.103), goal based motivation (beta = 0.103) and generalized trust (beta = 0.098) were associated positively. When the other focal variables were added as a block the effects of social connectedness and lower risk of exploitation were not detected (beta = -0.009, p = 0.661 and beta = 0.012, p = 0.560, respectively). Table 5 shows the OLS associations between the variables and psychological well-being with Huber-Charlton-style robust standard errors.

Table 5. Standardized OLS associations with psychological well-being (HC3 robust standard errors).

Predictor	Standardized beta	95% CI	p
Social connectedness	-0.009	[-0.047, 0.030]	.661
Generalized trust	0.098	[0.055, 0.141]	<.001
Lower exploitation risk	0.012	[-0.028, 0.051]	.560
Goal-based motivation	0.103	[0.059, 0.148]	<.001
Positive self-regard	0.108	[0.067, 0.150]	<.001
Emotional recovery	0.315	[0.272, 0.357]	<.001
Perceived social equity	0.103	[0.060, 0.146]	<.001

Note. n = 2,363. R2 = 0.192; adjusted R2 = 0.190. Maximum VIF = 1.17. Coefficients are conditional associations, not causal effects.

The results are used in a selective conclusion to answer RQ3. Some emotional resources and generalized trust and perceived societal fairness continued to be independently associated with the well-being proxy composite but the evidence suggests that not all social resources are beneficial in the same way. Modern research on support, family functioning, connectedness and resilience also differentiates between social relationships, which are available, and the psychological processes in which they are perceived [20-23]. This analysis reveals a similar separation in the CGSS 2021 complete case analytical sample, but is restricted to the constructs and respondents included in this analysis.

3.4. Robustness analysis using current happiness

The secondary happiness model explained 14.9% of variance (R2 = 0.149; adjusted R2 = 0.146). Emotional recovery remained the largest coefficient (beta = 0.219, 95% CI [0.177, 0.262], p < .001). Better self-regard, social equity, goal-based motivation, social connectedness and less exploitation risk were positively correlated with happiness. There was no evidence of a difference from zero after simultaneous adjustment (beta = 0.037, 95% CI [-0.007, 0.080], p = 0.102) for generalized trust. After simultaneous adjustment, significant outcome specific relationships were found: social connectedness was correlated with current happiness and not the psychological well-being (primary composite), and generalized trust was correlated with psychological well-being (primary composite) and not social connectedness. The standardized OLS associations for the robustness analysis with the present level of happiness as the dependent variable are shown in Table 6.

Table 6. Standardized OLS associations with current happiness (HC3 robust standard errors).

Predictor	Standardized beta	95% CI	p
Social connectedness	0.080	[0.040, 0.119]	<.001
Generalized trust	0.037	[-0.007, 0.080]	.102
Lower exploitation risk	0.047	[0.004, 0.090]	.034
Goal-based motivation	0.083	[0.038, 0.129]	<.001

Predictor	Standardized beta	95% CI	p
Positive self-regard	0.146	[0.103, 0.189]	<.001
Emotional recovery	0.219	[0.177, 0.262]	<.001
Perceived social equity	0.134	[0.086, 0.181]	<.001

Note. n = 2,363. R2 = 0.149; adjusted R2 = 0.146.

Figure 3 compares the standardized coefficients and 95% confidence intervals across the psychological well-being and current-happiness models.

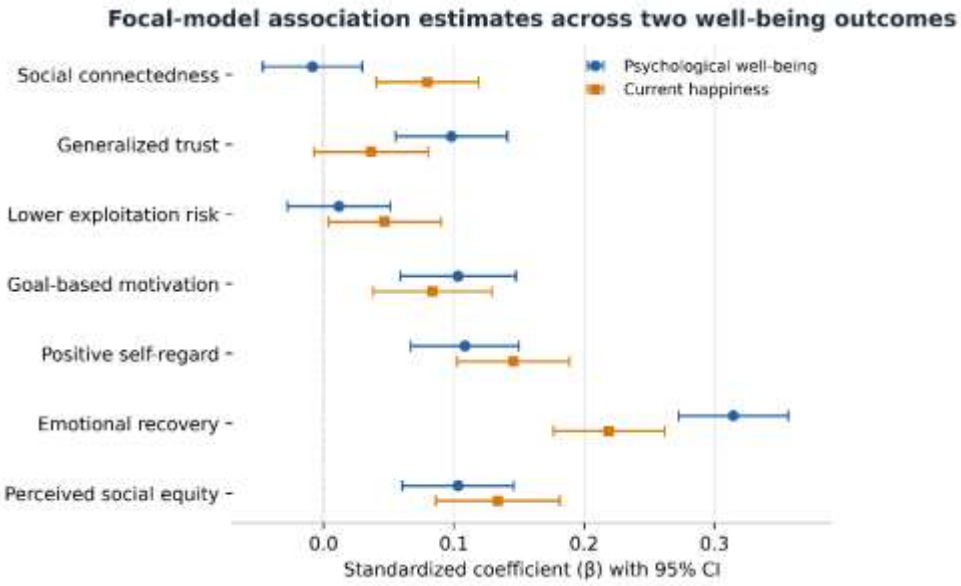

Figure 3. Comparison of standardized focal-model coefficients and 95% confidence intervals across the primary psychological well-being model and the happiness robustness model.

3.5. Covariate and weighting sensitivity analyses

A total of 211 two complete cases was used for the main outcome covariate adjusted model which accounted for 28.1% of variance (R2 = 0.281, adjusted R2 = 0.276). Socio-emotional factors were the smallest; the recovery from an emotional perspective (beta = 0.263, 95% CI [0.220, 0.306]) and the lower risk of exploitation (beta = 0.048, 95% CI [0.033, 0.063]). Positive self-regard (beta = 0.093, 95% CI [0.077, 0.109]), perceived social equity (beta = 0.082, 95% CI [0.066, 0.098]), generalized trust (beta = 0.065, 95% CI [0.050, 0.080]), and social connectedness (beta = 0.062, 95% CI [0.048, 0.076]) were the other socio-emotional factors. All emotional recovery, generalized trust, goal-based motivation and positive self-regard coefficients were positive and none of these coefficients were found to be in the 95% confidence interval for the raking-weighted focal model (R2 = 0.160; n = 2,363).

The perceived-equity estimate was reduced to beta = 0.030 (95% CI [-0.036, 0.095]) and the perceived social connectedness and perceived lower exploitation risk were both within the 95% CI. The main intrapersonal-resource pattern, therefore, was not sensitive to these checks and the fairness association was more sensitive to weighting and it should not be used as a pattern that is invariant across specification.Sensitivity analyses shown in Table 7 are covariate adjusted as well as sensitivity analyses based on weights.

Table 7. Sensitivity analysis for the primary psychological well-being outcome.

Predictor	Primary focal model	Covariate-adjusted	Raking-weighted
Social connectedness	-0.009 [-0.047, 0.030]	-0.019 [-0.057, 0.020]	-0.017 [-0.079, 0.045]
Generalized trust	0.098 [0.055, 0.141]	0.065 [0.021, 0.109]	0.121 [0.057, 0.186]

Predictor	Primary focal model	Covariate-adjusted	Raking-weighted
Lower exploitation risk	0.012 [-0.028, 0.051]	0.048 [0.008, 0.089]	0.047 [-0.015, 0.109]
Goal-based motivation	0.103 [0.059, 0.148]	0.089 [0.045, 0.133]	0.075 [0.009, 0.142]
Positive self-regard	0.108 [0.067, 0.150]	0.093 [0.050, 0.135]	0.075 [0.013, 0.138]
Emotional recovery	0.315 [0.272, 0.357]	0.263 [0.220, 0.306]	0.294 [0.226, 0.362]
Perceived social equity	0.103 [0.060, 0.146]	0.082 [0.039, 0.125]	0.030 [-0.036, 0.095]

Note. Entries are standardized beta [95% CI]. Primary and raking-weighted models used n = 2,363; the covariate-adjusted model used n = 2,112 and additionally controlled for age, sex, education, log-transformed personal income, self-rated health, partnered status, and urban/non-agricultural hukou. The raking-weighted model used weight_raking as a robustness check and is not a full complex-survey design estimate.

3.6. Diagnostic summary

Table 8 summarizes the main regression diagnostic results for the reported models.

Table 8. Regression diagnostic summary.

Model	Diagnostic	Result	Interpretation
Psychological well-being model	Maximum VIF	1.17	No material multicollinearity indicated
Psychological well-being model	Breusch-Pagan LM	147.50, $p < .001$	Heteroscedasticity detected; HC3 used
Current happiness model	Breusch-Pagan LM	88.03, $p < .001$	Heteroscedasticity detected; HC3 used

4. Discussion

4.1. Principal findings and theoretical interpretation

The main takeaway is that it is not a single social-emotional resource that accounts for well-being. Instead, the joint pattern is distinguished. Emotional recovery was consistently linked to the psychological well-being and happiness outcomes. Positive self-regard and goal based motivation also had positive coefficients in both models. Such findings are consistent with a resource-based interpretation, where emotional resources to re-establish positive self-perceptions, sustaining valued goals, and maintaining a positive orientation are seen as different types of intrapersonal resources. Studies conducted in recent years in China also have found that resilience, hope, self-worth, supportive relationships and other psychological resources to be correlated with adjustment and mental-health outcomes [24-29]. The present study does not attempt to establish a causal mechanism, but does demonstrate that these domains are not completely fused when taken together.

The social-resource results are more complex. Adjusted for age, gender, and ethnicity, psychological well-being was related to generalized trust, but not to the happiness index, and the happiness index was related to the connectedness index, but not to psychological well-being. Such a distinction is not in favor of "minscarcizing" social resources to only the number of contacts. Social contact can give companionship and positive affect, while generalized trust may be a general sense of reliability of the social environment. The correlation with lower exploitation risk is also weak, which further emphasizes the idea: correlated beliefs can result in different evaluations. Such distinctions should be maintained in a defensible interpretation, not just in terms of statistical significance but also in terms of practical significance.

4.2. Perceived social equity as a concurrent social-context correlate

In both the focal models and covariate adjusted primary-outcome sensitivity model, perceived social equity was positively correlated with well-being outcomes. When the CGSS raking weight was used, however, the

coefficient of the primary outcome was attenuated and the 95% confidence interval contained 0. Modest and specification-sensitive is therefore the meaning of the fairness association rather than its invariant interpretation. A35 assesses a global judgment of fairness, but does not ask respondents to identify which domain they were assessing (income distribution, procedural justice, opportunity, public services, or other). While organizational justice and ethical treatment have been shown to be a contributing factor to well-being [14-18,30-32] the two are conceptually distinct and are not necessarily measured equivalent to societal fairness. The defensible finding is that perceived societal fairness is related to individual well-being in a number of specifications and the size of the relationship and its accuracy are in part the result of analytic decisions; the finding does not prove that any objectively higher degree of equity leads to psychological health.

4.3. Implications for sustainable human development

The intention of referring to sustainable human development in terms of a broader implication, rather than an analyzed outcome, is deliberate. There is no sustainable-human-development index built and the regression models don't predict any sustainability outcome. The relevance rather comes from all the observed elements of psychological functioning, interpersonal trust, emotional resources, and perceived fairness. A perspective on human development focused on individuals' ability to live and function well in society would have a legitimate interest in these areas as social issues. Based on the results, it could be suggested that discussions on sustainable social development can be given due consideration to intrapersonal performances and the quality of the social environment. They do not demonstrate that an improvement of a single measured resource will lead to sustainable development nor do they set effects on a specific SDG.

The evidence is relevant to practice and policy in a proportionate way. Interventions that are relevant to emotional recovery, positive self-regard, and/or goal setting can be linked to psychological well-being, but this cross-sectional survey is not designed to suggest the effectiveness of interventions. Similarly, efforts to boost social trust or perceptions of fairness may be relevant to social wellbeing, but cannot be used to deduce which institutional change would affect these perceptions. The contribution is most defensible in a diagnostic sense: it points to the dimensions that are correlated in the observed data and to the dimensions that are not. This can be a very useful step for a longitudinal or policy-evaluation study to narrow down the hypotheses.

4.4. Strengths and limitations

The study has several features that enhance transparency. The empirical title is aligned to named CGSS variables, a direct societal-fairness item is used for the proxy of perceived social equity, low reliability item sets are not re-labeled as validated scales, the primary psychological well-being proxy is a 3 item composite with good internal consistency and all numerical results are reproduced from the uploaded data set. The same focal predictor set is explored with a different conceptual outcome (happiness) measure and explicit model heteroscedasticity diagnostics are provided and the main results are moderated by a parsimonious covariate adjusted model and a sensitivity model (raking weighted).

The restrictions are as significant. First, a cross sectional design doesn't allow for the establishment of temporal ordering, causal effects, mediation or developmental trajectories, and reverse relationships are possible. Second, all focal measures are self-reported; there may be shared-method variance and/or response-style bias. Thirdly, perceived social equity is one overall construct and does not differentiate between distributive, procedural, recognition-based or opportunity-based fairness. Fourth, the internal consistency of the connectedness index is relatively low, and the internal consistency of the trust and emotional-resource indicators are too low to combine. Fifth, the covariate-adjusted sensitivity model takes into account several important background characteristics, but does not go so far as to rule out residual or unmeasured confounding. Sixth, because of complete case requirements, the focal sample was reduced to 2,363 of the 8,148, and the covariate-adjusted sample to 2,112 of the 8,148 cases in the survey. In included cases, the variables may have some form of systematic bias. Seven: The raking-weighted sensitivity analysis does not include all the features of a complex survey design and should not be viewed as a complete design-based national estimate. Lastly, sustainable human development is not directly observable and is a frame of interpretation not an empirical result.

4.5. Future research

Research should examine these linkages in future studies using longitudinal data where the social-emotional resources, perceptions of fairness, and well-being are temporally separated. Analysis within the full documented CGSS complex survey design, using a larger set of theory-driven confounders, and the planned subgroup tests might help identify the presence of population heterogeneity without leading to the inference of cause and effect. Multi-item measures can also improve the measurement of bonding and bridging social capital, generalized and institutional trust, emotional regulation, self-worth, and specific types of social justice. This

would assist in clarifying whether the current coefficient pattern is a stable psychosocial relationship or context specific covariance in the current survey in 2021.

5. Conclusion

The study examined correlations between social resources, emotional resources, perceived social equity, proxy composite for psychological well-being, and current happiness based on 2,363 of the complete cases from CGSS 2021 who also had complete data on all of these variables. The results corroborate a view that social-emotional resources are not monolithic, but rather a collection of different scales within a scale. Emotional recovery, and positive coefficients in the focal models and parsimonious covariate adjustment and raking-weighted sensitivity analysis (RWA), were the largest and most consistent across the two well-being outcomes. There were outcome-specific patterns with regard to generalized trust and social connectedness. In both the focal and covariate adjusted models, there was a small positive correlation between perceived societal fairness, whereas in the primary outcome model the effect of perceived societal fairness was reduced in the raking weight, showing some specification sensitivity. The study does not, therefore, claim to be empirical proof of sustainable human development, but rather evidence of sustainable human development in the empirical sense. These results should be interpreted as associations because of the cross-sectional nature, self-reported nature, complete case, and not fully survey design adjusted design.

Author contributions

The validated study material did not provide author-specific CRediT contributions and, therefore, are not assumed herein. The last contribution statement should be made based on documented roles of the authors in the submission metadata.

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Ethical approval

The data for this study were secondary analyzed from de-identified Chinese General Social Survey 2021. There was no recruitment of new participants, intervention, or direct contact with the participants or collection of personally identifiable information for the present analysis. Ethical governance for the original survey was the data provider's responsibility for the CGSS. The present secondary analysis does not have an ethics approval number as one was not provided in the materials available for this study.

Informed consent statement

No additional informed consent was obtained for the present secondary analysis because no new participants were recruited. Any consent procedures associated with the original CGSS 2021 data collection were administered by the survey provider.

Data availability statement

The CGSS 2021 dataset used in this study is available through Figshare at https://doi.org/10.6084/m9.figshare.30041488. The analyzed source file contained 8,148 respondent records and 700 variables. The focal complete-case analytical sample comprised 2,363 respondents, and the covariate-adjusted sensitivity model comprised 2,112 respondents. The analyzed dataset file had SHA-256 checksum https://figshare.com/articles/dataset/_b_Chinese_General_Social_Survey_b_2021/30041488?file=57617965

Conflict of interest

Conflict-of-interest information was not supplied with the verified study materials. The applicable declaration should be completed from the authors' confirmed disclosure at submission.

Generative AI disclosure

Generative AI tools were used during manuscript preparation for language refinement, document organization, and formatting assistance. Statistical analyses and numerical results were derived from the CGSS 2021 dataset. The authors should review and verify the final manuscript and remain responsible for its content and submission disclosures.

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