

# Review of the Center for Epidemiologic Studies Depression Scale–Revised

**Zeming Wang**

**Peabody College at Vanderbilt University, TN 37203, America.**

---

**Abstract:** As a self-report screening tool for major depressive disorder (MDD), the Center for Epidemiologic Studies Depression Scale – Revised has long been widely used and administered by either individuals or clinicians within the United States since it was developed in 2004. However, in the past 20 years, only a few research studies have been conducted to examine the psychometric properties of this particular test. In this article, the author strived to provide a systematic and comprehensive introduction and review of the CESD-R, emphasizing its reliability and validity documented or evaluated in the existing research literature. In the meantime, the author also critically illustrated the intrinsic strengths and weaknesses of the CESD-R towards the end of the article, aiming to help individuals or clinicians understand both the benefits and drawbacks of administering the CESD-R to screen for MDD and advocate for more future research studies on the CESD-R.

**Keywords:** CESD-R; Major Depressive Disorder (MDD); Normative Information; Reliability and Validity; Strengths and Weaknesses

---

## General Information

*Primary Constructs Assessed:* According to Eaton et al. (2004), the CESD-R primarily assesses symptoms pertaining to major depressive disorder (MDD) documented in the fourth edition of The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 1994).

*Test Purpose:* Although the CESD-R might be useful in assessing the depressive phase of bipolar disorder and the depressive symptoms caused by persistent depressive disorder (Kimong et al., 2023), The primary purpose of the CESD-R was to help test-takers and clinicians to screen for MDD and determine whether an individual's levels and symptoms of depression is clinically significant or not based on the criteria set in the DSM-IV (Rababah et al., 2020). These criteria included nine different categories: (1) depressed mood, (2) remarkable loss of interest, (3) changes in weight and appetite, (4) sleeping issues, (5) changes in psychomotor function, (6) diminishing of energy or fatigue, (7) feelings of worthlessness, (8) dysfunction in thinking or concentrating, and (9) suicidal ideation (APA, 1994). A raw score that met or exceeded the cut-off score of 16 might reflect a clinically significant result.

Although the CES-D and the CESD-R were developed and widely used in the United States, research articles have shown that the CESD-R has been administered to individuals from various countries and studied across different cultures since it has been translated into more than a dozen of languages (Sriken et al., 2023). For example, a group of researchers from China successfully administered the CESD-R to 1920 Chinese college students and concluded that the CESD-R was a helpful tool for identifying threshold depression (Jiang et al., 2019). However, the sample used in this research was not representative enough to conclude that CESD-R was suitable for the general population in China to screen for MDD.

Like the CES-D, the CESD-R was not a tool developed to diagnose MDD. Thus, it cannot replace a formal psychiatric evaluation when it comes to counseling or treatment planning (Eaton et al., 2004). Eaton et al. also added that because of the CESD-R's orientation in screening for MDD, CESD-R was less helpful in tracking the individuals' changes in levels of depression after they obtained positive results and started to receive treatments. As a result, CESD-R was less commonly

used in clinical trials and treatment evaluations compared with other depression tests. However, individuals who obtained high scores on the CESD-R might experience more frequent occurrences of depressive symptoms and tend to have more severe levels of depression.

*Administration Type:* Individual

*Population/Range:* Adolescents and adults over 14 are suitable to take the CESD-R test. However, clinicians might be able to adapt the test and administer it to individuals slightly younger than 14 years old.

*Time Required to Administer, Score and Interpret:* In general, individuals take approximately less than ten minutes to self-administer, score, and interpret the test (Kimong et al., 2023). However, individuals with different reading levels may complete the test at various paces.

*Interpretive Scores Derived:* The CESD-R was a criterion-referenced test that closely corresponds to the nine diagnostic symptoms of MDD documented in DSM-IV (Van Dam & Earleywine, 2011). As a result, the CESD-R didn't provide standardized scores, sample mean, or percentile rank. However, it did give a cut-off score of 16 to help individuals or clinicians to decide whether a raw score obtained in the test was clinically significant based on the diagnostic criteria for MDD in the DSM-IV. To calculate the total raw score, one could add up the scores they got on each one of the 20 questions represented in the test. For example, if an individual's raw score on CESD-R was 18, which exceeded the cut-off score of 16, then this individual's levels and symptoms of depression were clinically positive and might need further investigation or counseling services. Unlike the Hamilton Depression Rating Scale (HAM-D), the CESD-R failed to provide multiple cut-off score ranges for mild, moderate, severe, and very severe depression to help individuals to gain a comprehensive understanding of their depressive symptoms and depression levels.

*Subtest (Subscale) Format:* The CESD-R contained 20 items that matched the nine diagnostic criteria listed in the DSM-IV and aimed to measure the frequency of a specific depressive symptom experienced by individuals in the past week ranging from "Less than a day," "one to two days," "three to four days," to "five to seven days." It was worth noticing that, compared with the CES-D, the CESD-R added an extra response option (nearly every day for two weeks) and made adjustments to the items by simplifying two existing items, getting rid of items that were no longer applicable for depression diagnosis, and supplementing items that indicated symptoms including loss of interest, psychomotor dysfunction, and suicidal ideation (Van Dam & Earleywine, 2011). To be more precise, according to Eaton et al. (2004), items two, four, and six measured the frequency of depressed mood or dysphoria. Items eight and ten counted the occurrences of loss of interest. Items one and 18 assessed changes in weight and appetite. Items five, eleven, and 19 reflected sleeping issues. Items three and 20 indicated the dysfunction in thinking and concentration. Items nine and 17 tested the feelings of worthlessness. Items seven and 16 assessed the loss of energy or fatigue. Items 12 and 13 measured psychomotor dysfunctions. Finally, items 14 and 15 helped to identify suicidal ideation. Although substantial changes had been made in the revised version of CES-D, the cut-off score of 16 still applied to identify clinically significant depressive symptoms and depression levels (Eaton et al., 2004).

*Item/Scoring Format:* The CESD-R was a self-report depression screening test that consisted of 20 Likert-type items based on a five-point scale, including zero (less than one day in the past week), one (one to two days in the past week), two (three to four days in the past week), three (three to four days in the past week), and four (every day for the past two weeks) to assess the frequency of depressive symptoms experienced by individuals. One can get the total raw score by adding up all the scores obtained on each question. The maximum score one could get on the CESD-R was 80. However, under some situations that required comparison to the original version of the CES-D, researchers or clinicians might recalibrate the scores and make the points obtained for "every day for the past two weeks" the same as the points obtained for "five to seven days in the past week," which was three and generate a maximum score of 60 (Walsh, 2014). Individuals could complete the CESD-R test in a paper-and-pencil format, via telephone, or online by choosing the options that best described the occurrences of their depressive symptoms (Eaton et al., 2004).

*Qualifications of Examiners:* Multiple research studies suggested that the CESD-R was a self-report assessment and

freely available in the public domain across different cultures and countries, which didn't require advanced degrees or special qualifications (Kimong et al., 2023; Rababah et al., 2020; Sriken et al., 2023). As a result, the CESD-R might be qualified as a Level A instrument (Erford, 2021). However, Erford also argued that the results might be inaccurate due to the lack of expertise of individuals who self-administered Level A tests. With that being said, individuals must be extra cautious when taking the CESD-R and other Level A tests and decrease the possibility of misinterpretation by reading carefully through the instructions and seeking help from mental health professionals.

## GENERAL ADMINISTRATION AND SCORING PROCEDURES

As a screening instrument, the CESD-R's administration and scoring procedures were relatively easy, quick, and cost-effective (Kagee et al., 2020). There is no test manual or script provided for CESD-R. However, individuals could gain access to the CESD-R test using the Internet and complete it in under ten minutes due to its high availability and straightforward instructions. A summed raw score that met or exceeded the cut-off score of 16 on the CESD-R would indicate a clinically significant result. In the meantime, though the CESD-R was designed to screen MDD in the general public (Eaton et al., 2004), it did require the test-takers to have a reading level of approximately sixth grade or higher so that they could understand the questions and add the scores correctly.

As a Level A test, the CESD-R might inevitably provide inaccurate results (Erford, 2021). According to Erford (2021), a distraction-free assessment environment might benefit test-takers and help generate results that best reflect an individual's true performance. As a result, when taking the CESD-R, individuals should find themselves in a quiet and safe environment with sufficient lighting, enough space for writing, and proper temperature. Furthermore, due to the fact that clinicians might need to administer the CESD-R to their clients or patients, they should be familiar with the instructions, create better testing environments, provide unbiased encouragement when necessary, and interpret the results thoroughly and objectively.

## Normative Information

*Type of Norms:* As criterion-referenced assessments, both CES-D and the CESD-R did not incorporate norm groups during the development process. However, Eaton et al. (2004) did use six sets of samples in six different research studies to decide which questions should be added to or eliminated from the original CES-D and examine the reliability and validity of the CESD-R.

*Age Grade of Participants:* As for Study One, the median age of the participants was 37, with the youngest being 19 and the oldest being 76 (Eaton et al., 2004). As for Study Two, Eaton et al. failed to include the participants' age. In Study Three, though Eaton et al. didn't report the exact age of the participants, they indicated that these participants were all parents of teenage children. The participants in Study Four were between 12 to 51 years old, with an average age of 29. The participants in Study Five were between 60 and 92 years old. Finally, Eaton et al. didn't report the participants' age in Study Six.

*Sex of Participants:* According to Eaton et al. (2004), of all 41 participants in Study One, 24 of them were females, and 17 of them were males. As for Study Two, although Eaton et al. concluded that women tended to have higher levels of depression than men, they did not show the exact number of females or males who participated in the study. Similarly, Eaton et al. did not disclose the sex composition of the participants in Study Three. As for Study Four, of all 120 valid responses received by the researchers, two-thirds of the respondents ( $n = 80$ ) were male, and one-third of the participants ( $n = 40$ ) were females. There were 288 individuals who participated in Study Five. Among them, 66 percent ( $n = 190$ ) were females, and 33 percent ( $n = 98$ ) were males. Finally, all 868 participants in Study Six were females.

*Dates of Standardization:* Not applicable

*Number of Participants in Sample:* Study One: 41; Study Two: 1055; Study Three: 70; Study Four: 120; Study Five: 288; and Study Six: 868 participants.

Sample Characteristics:

*Geographic Composition:* Of all 41 participants in Study One, 27 were residents from the East Baltimore Area, and 14 were patients in a psychiatric hospital (Eaton et al., 2004). Participants in Study Two were all residents of rural West Virginia.

Eaton et al. did not reveal the detailed geographic information of the participants in Study Three and Study Four. As for the participants in Study Five, all of them were from a primary healthcare clinic in Mexico City. Finally, individuals who participated in Study Six were all nurse assistants from 50 different nursing homes located in West Virginia and Ohio.

*Racial Composition:* Of all 41 participants in Study One, 27 were White, and the rest were reported as non-whites (Eaton et al., 2004). Additionally, all participants in Study Five were Hispanic. However, Eaton et al. did not provide the racial or ethnic information of the individuals who participated in Study Two, Three, Four, and Six.

*Socioeconomic Composition:* Eaton et al. (2004) failed to include detailed information regarding participants' socioeconomic backgrounds in the first five studies. As for the participants in Study Six, Eaton et al. described them as minimum-wage workers facing psychological and physical challenges due to their working conditions. Despite the lack of formal or detailed descriptions of participants' socioeconomic statuses in the research, Eaton et al. concluded that unemployed participants, participants without high school degrees, and participants who earned less than 15 thousand dollars were more likely to report high rates of depressive symptoms.

*Availability of Subgroup Norms:* Not applicable

## Reliability

*Internal Consistency:* In a meta-analysis study conducted by Kimong et al. (2023), they examined the internal consistency of the English version of CESD-R reported in 18 different studies and found that the English version displayed an outstanding internal consistency with a cumulative Cronbach's alpha coefficient of 0.92 based on an overall sample size of 13,150. Additionally, they also discovered that both clinical-only samples ( $n = 3,438$ ) and nonclinical-only samples ( $n = 9,712$ ) all yielded excellent internal consistency with a cumulative Cronbach's alpha coefficient of 0.908 and 0.924 respectively, which were beyond the threshold of 0.8 for screening level assessment recommended by Erford (2021). However, due to the limited number of existing studies that aimed to measure the internal consistency of the CESD-R, Kimong et al. (2023) advised the public to be cautious when analyzing and viewing the results obtained in the research. In a more recent research study using a sample of 996 undergraduates with diverse cultural and ethnic backgrounds, Sriken et al. (2023) found that the internal consistency of the CESD-R remained excellent and produced an  $\alpha = 0.92$ .

*Test-Retest:* No research studies or articles were found after conducting the comprehensive literature regarding the test-retest reliability of the CESD-R. Kimong et al. (2023) also stated that no studies regarding CESD-R in English explored its test-retest, alternate-forms, split-half, and inter-rater reliability.

*Alternate-Form:* No studies regarding the alternate-form reliability of the CESD-R or alternate forms of the CESD-R were discovered during the literature review.

*Scorer Reliability:* Although there were no research studies designed specifically to examine the scorer reliability of the CESD-R, given the straightforward nature of the scoring and interpreting procedure of the CESD-R of adding up the scores obtained on each item and comparing with the cut-off score of 16, it was likely that the CESD-R might have high scorer reliability.

## Validity

*Content Validity:* In the case of the CESD-R, content validity was obtained by examining how well the 20 items on the test were in measuring depressive symptoms. Since the original CES-D has been proven to be both valid and reliable in various research studies (Eaton et al., 2004) and the revision of the CES-D was developed by five mental health professionals using six different research studies to make the items more consistent with the depressive symptoms listed in the DSM-IV (APA, 1994), it is highly possible that the CESD-R possessed high content validity.

*Criterion-related Validity:*

*Concurrent Criterion-related Validity:* Although Kimong et al. (2023) failed to locate any research studies measuring the relationship between CESD-R and other widely used depression assessments, such as the Beck Depression Inventory, Second Edition (BDI-II) developed by Beck et al. (1996) and the Patient Health Questionnaire (PHQ-9) created by Kroenke et al. (2001), they discovered that the CESD-R strongly and positively correlated with the Positive and Negative Affect Scale

(PANAS-NA;  $r = 0.57$ ) and the Suicidal Behaviors Questionnaire-Revised (SBQ-R;  $r = 0.62$ ). Additionally, they also found that the negative correlation among the CESD-R, the Satisfaction with Life Scale (SWLS;  $r = -0.45$ ), and the SF-36 Mental Health Subscale ( $r = -0.74$ ) was medium to large. However, since items on CESD-R and the other depression assessment mentioned above tended to be similar because they all attempted to describe depressive symptoms in the DSM-IV (APA, 1994), Kimong et al. (2023) suggested that they were not highly related and further investigations regarding the correlation and relationship between the CESD-R and other depression inventories might be necessary for determining the CESD-R's actual concurrent criterion-referenced validity.

*Predictive Criterion-related Validity:* Since the CESD-R was a screening level test, the emphasis of it was to identify clinically significant levels and symptoms of depression in the present instead of the future.

*Construct Validity:*

*Convergent and Discriminant Validity:* Convergent and discriminant validity could be measured by examining the correlation between a test and other tests that measured a similar construct and the correlation between a test and other tests assessing different constructs (Erford, 2021). After analyzing 21 research studies, Kimong et al. (2023) concluded that the correlation between CESD-R and other tests evaluating mental health disorders and resilience was moderate to high, meaning that the CESD-R could produce high degrees of convergent validity when correlated with assessments measuring similar constructs. In addition, they also claimed that there was no significant correlation between the CESD-R and other assessments measuring unrelated constructs. In a research study that administered the CESD-R, the Generalized Anxiety Disorder Screener (GAD-7), the Alcohol Use Disorder Identification Test (AUDIT), and the Social Justice Scale (SJS) to a large sample of university students, Sriken et al. (2023) discovered that the correlation between the CESD-R and the GAD-7 ( $r = 0.67$ ) was high, indicating the evidence of convergent validity. Additionally, the correlation between the CESD-R and the AUDIT ( $r = 0.12$ ) and the correlation between CESD-R and SJS ( $r = 0.02$ ) all served as evidence of discriminant validity (Sriken et al., 2023).

*Factor Analysis:* Factor analysis allowed researchers and test developers to decide which items tend to correlate with each other (Erford, 2021). Van Dam and Earleywine (2011) proposed that the items on the CESD-R primarily measured two factors, including functional impairment and depressed mood. Additionally, in the research study by Walsh (2014), he also identified two factors, which were depressed mood and suicidal ideation. Kimong et al. (2023) suggested the discrepancies between the two studies in identifying factors might be due to the ethnic backgrounds of the participants in each research study and the sample size.

## **Strengths**

Many research studies have proven the strengths displayed by the CESD-R. As mentioned above, the CESD-R was a free screening tool for MDD that provides clear cut-off scores and instructions. The test was available online and free of charge. Individuals could self-administer the test, score the test, and interpret the test results all by themselves without in-depth training or advanced qualification, which allowed more people to have the opportunity to assess their depressive symptoms and get help from others. The CESD-R was also time-efficient since the whole process of taking the CESD-R took only five to ten minutes, and there were only 20 items on the test. Although CESD-R was a Level A test and nearly everyone who had a reading level of sixth grade could articulate the items presented on the test, calculate the total raw score, and compare it with the cut-off score of 16, test-takers should be cautious when taking the test and treat the test seriously to avoid potential inaccuracies. When administering the CESD-R to clients, clinicians should familiarize themselves with the test instructions, make sure the clients are free of distractions by providing good testing environments, and giving clarifications and encouragement when necessary so that the clients' raw scores in the CESD-R could best reflect their current depression levels and symptoms. Additionally, the CESD-R has been converted into more than 12 languages across the world, which made it more widely used by different populations from various cultural and ethnic backgrounds (Kimong et al., 2023).

In general, the CESD-R displayed high reliability and validity across various research studies. According to Kimong et

al. (2023), the accumulative Cronbach's alpha level of the CESD-R derived from 18 research studies was 0.92 and higher than the recommended internal consistency of 0.80 for screening-level tools proposed by Erford (2021). Although there were no research studies designed to assess the scorer reliability of the CESD-R, the CESD-R might have a high scorer reliability due to the objectivity of the items and a clear cut-off score of 16.

CESD-R was designed to measure each one of the nine diagnostic symptoms for MDD documented in the DSM-IV (APA, 1994), which helped to adjust some outdated items from the previously well-established and empirically supported CES-D. Additionally, the CESD-R was revised and validated by a group of experienced mental health professions using empirically supported research studies. As a result, the CESD-R has a strong degree of content validity. The CESD-R also demonstrated high concurrent criterion-related and convergent validity when correlated with some depression-related assessments, such as the PANAS-NA ( $r = 0.57$ ) and the SBQ-R ( $r = 0.62$ ). Finally, several studies concluded that the correlation between the CESD-R and other tests that didn't measure depression-related symptoms was low, indicating a high level of discriminant validity.

## Weaknesses

One of the most significant weaknesses of the CESD-R was that it failed to provide multiple cut-off score ranges to help individuals or clinicians determine the severity of the depressive symptoms and track the improvement of an individual when receiving treatment. Also, given the primary purpose of the CESD-R was to screen for depression instead of diagnosing depression, CESD-R was less commonly used in treatment planning and clinical trial.

Additionally, since the CESD-R was developed in 1994 and aimed to match the depressive criterion in the DSM-IV (APA, 1994), some of the items on the test might be outdated and improper to apply to populations outside Western society since they may have different definitions and perceptions regarding depression and depressive symptoms. As a result, researchers and clinicians in various countries might disagree on the optimal cut-off score of 16 when using CESD-R to screen for MDD in different cultural settings and contexts. When trying to validate CESD-R's application in screening for MDD across different cultural settings, Kimong et al. (2023) also found that two items on the original CES-D, including "people were unfriendly" and "I felt that people dislike me," which might reflect socially marginalized respondents' perceptions regarding racial prejudice instead of actual depressive symptoms, still existed in the CESD-R.

Secondly, several research studies revealed that the CESD-R would be helpful in identifying the depressive phase of bipolar disorder and the depressive symptoms related to persistent depressive disorder. As a result, individuals who lacked professional training in psychology or related fields might not be able to tell if the symptoms they were experiencing were due to depression or other mental health issues. It might be in individuals' best interest to seek formal diagnosis and counseling services to help with depressive symptoms. Furthermore, the CESD-R failed to provide the proper age for an individual to take the test. Many research studies suggested that the reading level of the test applied to adolescents and adults older than 14 years old. As a result, children younger than 14 might not be eligible to take the test.

Thirdly, although the CESD-R correlated strongly and significantly with several other assessments measuring depression-related constructs, such as the PANAS-NA and SBQ-R, Kimong et al. (2023) theorized these high correlations should be attributed to the fact that lots of the items on the CESD-R were similar or even identical to some of the items on other tests that purported to measure depression and other related constructs. As a result, they advocated for more research studies examining the correlation between CESD-R and other commonly used depression inventories to determine the concurrent criterion-related validity of the CESD-R./

Finally, although CESD-R had been published for more than 15 years, relatively small numbers of research articles and studies were composed or conducted to explore the validity and reliability of the test compared with other widely used depression inventories, such as the BDI-II and the PHQ-9 (Kimong et al., 2023). As a result, some of the psychometrical properties of the CESD-R remained unknown. Kimong et al. also reported that they were not able to find any research studies dedicated to evaluating the test-retest, alternate-forms, split-half, and inter-rater reliability of the CESD-R. In addition, the convergent validity of the CESD-R was not well-established since most of the depression-related inventories

used in multiple studies to correlate with CESD-R were not commonly used by the general public. As a result, more research studies were needed to provide more robust evidence to prove that the CESD-R was a reliable and valid screening tool for MDD.

## References

- [1] American Psychiatric Association. (APA). (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Authors.
- [2] Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory* (2nd ed.). Psychological Corporation.
- [3] Eaton, W. W., Muntaner, C., Smith, C., Tien, A., & Ybarra, M. (2004). Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R). In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment* (3rd ed., pp. 363–377). Lawrence Erlbaum.
- [4] Erford, B. T. (2021). *Assessment for counselors*. Pearson.
- [5] Jiang, L., Wang, Y., Zhang, Y., Li, R., Wu, H., Li, C., Wu, Y., & Tao, Q. (2019). The reliability and validity of the Center for Epidemiologic Studies Depression Scale (CES-D) for Chinese University Students. *Frontiers in Psychiatry, 10*, 315–315.
- [6] Kagee, A., Bantjes, J., Saal, W., & Sterley, A. (2020). Predicting caseness of major depressive disorder using the Center for Epidemiological Studies Depression Scale (CESD-R) among patients receiving HIV care. *General Hospital Psychiatry, 67*, 70–76.
- [7] Kimong, P. J., Erford, B. T., & DeCino, D. A. (2023). Psychometric Synthesis of the Center for Epidemiologic Studies Depression Scale – Revised English and Translated/Adapted Versions. *Measurement and Evaluation in Counseling and Development, 56*(2), 169–185.
- [8] Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606–613.
- [9] Rababah, J., Al-Hammouri, M. M., Drew, B. L., Ta'an, W., Alawawdeh, A., Dawood, Z., & Jawhar, W. (2020). Validation of the Arabic version of the Center for Epidemiologic Studies Depression-Revised: A comparison of the CESD-R and CESDR-12. *Journal of Affective Disorders, 274*, 450–456.
- [10] Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385–401.
- [11] Sriken, J., Erford, B. T., Sherman, M. F., Watson, K., & Smith, H. L. (2023). Measurement invariance and structure validity of scores on the Center for Epidemiologic Studies Depression - Revised (CESD-R) scale with a large university sample. *Measurement and Evaluation in Counseling and Development, 1*–15.
- [12] Van Dam, N. T., & Earleywine, M. (2011). Validation of the Center for Epidemiologic Studies Depression Scale—Revised (CESD-R): Pragmatic depression assessment in the general population. *Psychiatry Research, 186*(1), 128–132.
- [13] Walsh, T. (2014). *The conceptualization of depression and acculturative stress among Latino immigrants: A comparison of scores from Non-Hispanic whites and persons of Mexican origin on the Center for Epidemiologic Studies Depression Scale - Revised (CESD-R)* [Doctoral dissertation, University of North Carolina at Chapel Hill Graduate School]. Carolina Digital Repository.

About the author: Name: Zeming Wang, Date of Birth: October/7th/1997, Gender: Male, Ethnicity: Han, Chinese, Place of Residence: Shanghai, China, Education: Master's student, Research Focus: Human Development Counseling with a Specialty in School Counseling, Affiliation: Peabody College at Vanderbilt University.