

2-6-2020

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# An Assessment of Mental Wellbeing and Health-Related Quality of Life Among Youth Living in Central Mexico

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Received: December 11, 2019 Accepted: January 25, 2020 Online Published: February 6, 2020

doi:10.5539/gjhs.v12n3p1

URL: <https://doi.org/10.5539/gjhs.v12n3p1>

## Abstract

The current state of adolescent mental health and wellbeing in Mexico constitutes a serious public health concern. In an effort to better understand the potential impact this crisis is having on youth in Central Mexico, we designed a study to assess the connection between Mental Wellbeing and Health-related Quality of Life among a sample of children in junior high school. Descriptive statistics suggest that 22.5% of our sample was “at-risk” of poor health-related quality of life, with 19.8% at risk within the physical subscale and 24.3% at risk within the psychosocial subscale. Regression analyses showed that mental wellbeing scores significantly predicted scores on the physical subscale of the quality of life measure, but did not predict overall wellbeing or psychosocial wellbeing. If replicated, our results may have important implications for health professionals, social workers, researchers, policy makers, and other individuals living in Mexico. We encourage continued research among Mexican youth in rural, underserved areas of Central Mexico such as Michoacán in order to further support strengths-based approaches for improving both their mental wellbeing and quality of life.

**Keywords:** mental wellbeing, quality of life, Mexico, youth, adolescence

## 1. Introduction

### 1.1 Mental Health in Mexico

Estimates within the last decade indicate that 10–20% of youth throughout the world struggle with mental health issues (Kieling et al., 2011). While this is a global issue, one country that appears to be faring worse than others is Mexico, which is estimated to have twice the prevalence of mental disorders among children and adolescents compared to neighboring countries like the U.S. and Canada (Espinola-Nadurille, Huicochea, Raviola, Ramirez-Bermudez, Kutcher, 2010; Perkins, Wood, Varjas, Vanegas, 2016). Unlike wealthier countries, however, youth struggling with mental health challenges in Mexico face the disheartening prospect of a severely underfunded mental health network with inadequate providers (Organisation for Economic Cooperation and Development [OECD], 2012; Perkins, Wood, Varjas, & Vanegas, 2016). This incomplete system is likely leaving thousands of youth captive to a lifetime of potentially preventable mental health problems (Albores-Gallo, Saucedo-García, Ruiz-Velasco, & Roque-Santiago, 2011; Borges, Wang, Medina-Mora, & Chiu, 2007; Kieling et al., 2011).

Various ideas have been set forth attempting to identify the cause(s) of the mental health crisis in Mexico. For example, Villarreal and Yu (2017) have pointed to homicide rates as one of the primary reasons for these increasingly problematic levels of mental health issues. Along with increased violence comes a lack of safety and feelings of susceptibility, which have been linked to depression, agoraphobia, alcohol abuse, and poor mental health (Altman, Gorman, & Chávez, 2018). Researchers have pointed to the Mexican suicide rate specifically as being linked to this increase in violence and mental health problems (Benjet et al., 2017). Further compounding the crisis is the stigma surrounding seeking help for mental health problems in Mexico, which continues to be a major barrier to the support and treatment of suffering individuals (González, Tarraf, Whitfield, & Vega, 2010; Harley, 2018). For mental health professionals, medical doctors, researchers, as well as family members of suffering individuals, the current state of adolescent mental health and wellbeing in Mexico constitutes a serious public health concern.

### *1.2 Mental Wellbeing*

One relatively recent approach being used by many countries to assess the impact of mental health problems on its citizens is the study of mental wellbeing (Castellví et al., 2014; Keyes, 2012). Mental wellbeing differs from the concept of mental health in that it looks at more than just the absence of illness, but broadens the focus to include psychological functioning and experience (Ryan & Deci, 2001). For centuries, the general approach to mental health has been focused on deficits and weaknesses, which has led to our current system of deficits-based diagnosis, assessment, and treatment (DuBois & Miley, 2014; Hoffman, Rueda, & Lambert, 2019). As a result, the stigma associated with mental health has negatively impacted help-seeking behaviors (Clement et al., 2015; Eisenberg, Downs, Golberstein, & Zivin, 2009; Harley, 2018). Fortunately, the fields of social work and positive psychology have been pioneers in working with clients from a strengths-based approach. A “strengths-based” approach focuses on uncovering and emphasizing a client’s good qualities to help them use their talents and abilities to achieve positive life changes (Saleebey, 1996). The use of this positive approach is particularly important in the field of mental health because it moves away from inflexible and narrow views of mental health challenges (e.g., labeling) that is reinforced by the traditional deficits-based approach (Rhee, Furlong, Turner, & Harari, 2001). This change of perspective and approach is important for at least two reasons. First, there is a strong body of research looking at the powerful connection between our mind and our body (e.g., Rosenkranz & Davidson, 2009; Williams & Kabat-Zinn, 2011). Framing/treating difficulties from a strengths perspective can assist individuals tap into the power of positive thinking which we know from research is positively associated with wellbeing. Furthermore, a strengths perspective aims to improve self-efficacy, empowering individuals to see themselves as able to control, manage, and direct their personal health goals (see Grant & Cadell, 2009; Manthey, Knowles, Asher, & Wahab, 2011).

One of the measures that has resulted from this movement is the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS). The WEMWBS is a mental wellbeing assessment that has been adapted for use in many countries and languages, and has consistently performed well on psychometric assessments (López et al., 2013; Stewart-Brown & Janmohamed, 2008). It has also played a key role in establishing mental wellbeing as an important piece of governments’ mental health agendas (Stewart-Brown, 2013). Given that the research on Mexico’s mental health is showing a complex combination of difficult problems, using the WEMWBS instrument could be an important method of incorporating a strengths-based approach to our understanding of the current crisis.

### *1.3 Health-Related Quality of Life*

Just as the concept of mental wellbeing is altering how we think of mental health, the study of health-related quality of life (HRQOL) is likewise changing how we consider our physical health. In contrast to historically narrow biological markers of health such as disease prevalence and medical conditions, in recent years there has been a greater emphasis placed on patient-reported outcomes via HRQOL (Quittner et al., 2010). One particular instrument that has been cited hundreds of times and used in studies throughout the world is the Pediatric Quality of Life Inventory (PedsQL). This youth-centered HRQOL instrument not only provides an overall look at an individual’s HRQOL, but breaks down their total score into physical and psychosocial sub-scale domains. Assessing HRQOL provides researchers and clinicians an interconnected and multifaceted look at the impact of physical, emotional, and social functioning on one’s health (Giachello, 1996). For example, measuring HRQOL may be particularly meaningful when working with patients whose emotional and social assets are serving as layers of prevention that blunt the risk or impact of disease (Boehmm & Kubzansky, 2012; Thurston & Kubzansky, 2009). Researchers, governments, and health providers in various countries throughout the world - including the United States (Hirsch et al., 2019), Germany (Schlack, Ravens-Sieberer, & Petermann, 2013), and Mexico (Kantor, Grimes, & Limbers, 2015) - have begun to assess health more broadly using HRQOL. However, despite its growing use and popularity as a standalone construct, research looking at the connection between HRQOL and other important health constructs is still in its infancy.

### *1.4 Mental Wellbeing and Health-Related Quality of Life*

Various global studies support the idea that mental wellbeing is related to HRQOL (Alonso et al., 2018; Cronly et al., 2018). Looking at data from a population survey in Australia, Busija, Tan, and Sanders (2017) found a significant correlation between HRQOL and eight common health conditions, including anxiety, depression, and bipolar disorder. In Italy, Gerino, Rollè, Sechi, and Brustia (2017) found that HRQOL and mental health are negatively impacted by a lack of social support and loneliness among older adults. And in Finland, Saarni et al. (2007) found large losses in HRQOL due to common mental disorders including anxiety and depression at both the individual and population levels. Although the literature exploring the connection between these two health

constructs is limited, preliminary studies suggest that studying the influence of mental wellbeing on HRQOL may provide health professionals in Mexico with a new mental health tool for understanding negative mental health trends and identifying their connection to physical and psychosocial outcomes.

### *1.5 The Present Study*

Given the growing mental health concerns, suicide rates, and related health issues among Mexican youth (Benjet et al., 2017; Villarreal & Yu, 2017), this study seeks to provide clarity to our understanding of mental wellbeing, health-related quality of life, and their possible connection among a sample of Mexican youth. The purposes of this paper are as follows: 1) Assess the mental wellbeing of a sample of Mexican youth using a strengths-based assessment of mental health (the WEMWBS); 2) Assess their total health-related quality of life using the PedsQL, as well as their physical and psychosocial sub-scores; and 3) examine whether there is a connection between their mental wellbeing and HRQOL. Given the current mental health crisis in Mexico, we hypothesize that participants will have lower levels of mental wellbeing and health-related quality of life, and we hypothesize that mental wellbeing will be positively associated with HRQOL.

## **2. Method**

### *2.1 Participants and Procedures*

The governing Institutional Review Board approved this study and all its procedures (UTSA Approval Number: 14-241N). The first and second authors of this study collaborated with a research team in Mexico to carry out recruitment and survey administration. Participants were students from a middle school (U.S. equivalent = seventh to ninth grade) in a rural town of Michoacán, Mexico. Two school psychologists led the Mexican research team, which recruited participants and obtained consent. A major part of the financial stability of this community comes from migration to the U.S., which caused some concern among participants' families about personal information and confidentiality when the study was first introduced to them. Therefore, the research team concluded that written consent was unethical, and instead obtained verbal consent by speaking with parents and students about the risks/benefits of participating in the study. Parents and students were told the purpose of the research, specifically that researchers in the U.S. were interested in youth's health and health-related experiences. After this discussion, anyone that wished could withdraw from participation in the study. There were a total of 116 potential participants, and 112 students agreed to participate (54 females, 58 males; mean age = 13, SD = 0.99).

### *2.2 Measures*

Participants were asked to complete the Spanish version of the WEMWBS and Pediatric Quality of Life Inventory (PedsQL) as part of a general health survey. The WEMWBS is a 14-item survey measuring mental wellbeing with a 5-point Likert response scale (e.g. "I've been feeling optimistic about the future", "I've been feeling loved"). Individuals' total scores are the sum of their responses, which could range from 14 to 70 (WEMWBS User Guide, 2008). The WEMWBS measures aspects of mental wellbeing that go beyond deficits to include life-satisfaction, mutually beneficial relationships, and positive psychological functioning (WEMWBS User Guide, 2008). The scale was developed by the Scottish government to assess positive mental wellbeing in the United Kingdom (Stewart-Brown & Janmohamed, 2008). Since then, it has been successfully adapted and translated for use in other countries, specifically Spanish speaking countries such as Spain, Chile, Mexico, and Argentina (Carvajal, Aboaja, & Rubén, 2015; Castellví et al., 2014; Hoffman, Rueda, & Lambert, 2019; López et al., 2013). The validity and reliability of the original measure, as well as the Spanish translation, have been rigorously evaluated in many studies and found to be adequate for use among both youth and adults in various countries (López et al., 2013; Stewart-Brown & Janmohamed, 2008). In Mexico, Hoffman, Rueda, and Lambert (2019) found it to be a psychometrically sound measure of mental wellbeing for Mexican youth.

The PedsQL is a 23-item survey that uses a 5-point Likert response scale and focuses on distinguishing healthy children from children at risk of low HRQOL (e.g. "It is hard for me to run", "I have trouble sleeping"). Individuals' totals are computed by reverse scoring the responses and calculating the mean. The physical health subscale consists strictly of the Physical Functioning section of the survey, while the psychosocial subscale includes the Emotional, Social, and School Functioning sections (Varni, 2012). Studies throughout the world in various languages have shown the PedsQL to be a reliable and valid measure (Varni, Seid, & Kurtin, 2001; Varni, Seid, & Rode, 1999).

Control variables for this study were age, gender (0=female, 1=male), highest education level obtained by either parent (0=Less than high school – 6=doctoral/professional degree), and self-reported overall health (0=poor – 4=excellent). See Table 1 for a descriptive breakdown of the study variables.

### *2.3 Data Analysis*

In order to establish baseline information on the mental wellbeing and health-related quality of life among our sample, descriptive statistics for all variables and bivariate correlations for associations of interest were run using Stata 15 software (StataCorp, 2017). Second, previously established clinical cut off values indicating “at risk” status for HRQOL were used to determine the percentage of students “at risk” (Total Score = 69.71, Physical Subscale = 72.98, Psychosocial Subscale = 66.03; Varni et al., 2003). Lastly, in order to assess the relationship between mental wellbeing and HRQOL, three ordinary least squares (OLS) regression models were run. The first model used the total HRQOL score as the dependent variable, while the subsequent two models used the physical and psychosocial subscales as dependent variables. Control variables included age, gender, parent education, and self-reported overall health.

Table 1. Descriptive Statistics

Variables	<i>N</i>	<i>M (SD)</i>	Range
Age	110	13.20 (0.99)	11-16
Gender (0=female)	112	0.52 (0.50)	0-1
Parent Education	104	0.73 (1.49)	0-6
Overall Health	110	2.34 (0.98)	1-4
WEMWBS	93	54.47 (8.78)	21-70
PedsQL	111	78.90 (12.67)	28.75-100
Physical	111	84.20 (13.15)	18.75-100
Psychosocial	111	76.06 (14.58)	35.42-100

### 3. Results

Table 1 provides an overview of descriptive statistics for all study variables. Students in our sample came from low SES households, with participant’s parents on average having less than a high school education. Students generally considered themselves to be in “good” health, evidenced by an average score of 2.3 (SD=.98) on the single-item self-assessment of overall health. The average score on the WEMWBS assessment of mental wellbeing was 54.47, roughly 4 points higher than the average score among the provisional population norm originally established in the UK (WEMWBS User Guide, 2008), and approximately 2-3 points lower than in studies among Spanish speaking adult populations in South America and Spain (Carvajal, Aboaja, & Alvarado, 2015; Castellví et al., 2014).

Table 2 provides a breakdown of PedsQL scores by “at-risk” status. The average total score was 78.90 (SD = 12.67), with 22.5% of the sample falling within the at-risk range. The average score on the physical subscale was considerably higher at 84.20, with slightly fewer (19.8%) in the at-risk range. The psychosocial subscale had the lowest average score at 76.06 (SD = 14.58) and the highest percent of at-risk respondents at 24.3%.

Table 2. PedsQL Breakdown of “At Risk” Status

Variables	<i>M (SD)</i>	Range	% “At Risk”
Total	78.90 (12.67)	28.75-100	22.52
Physical	84.20 (13.15)	18.75-100	19.82
Psychosocial	76.06 (14.58)	35.42-100	24.32

Linear regression results predicting quality of life are shown in Table 3. The primary independent variable, mental wellbeing, was a statistically significant predictor for scores on the physical subscale of the PedsQL ( $b=0.39$ ,  $p < .05$ ) as shown in Model 2, but not for the full scale (Model 1) or psychosocial subscale (Model 3). Results also indicate that gender was a statistically significant predictor for total quality of life ( $p < .05$ ), and a marginally significant predictor in the subscale models. Also, self-reported overall health was a marginally significant predictor of the physical quality of life subscale, although it was not a significant predictor in the other models.

Table 3. Linear regressions showing mental well-being predicting total health-related quality of life and health-related quality of life subscales (N = 86)

	Model 1 (total)	Model 2 (phy)	Model 3 (psysoc)
Mental Wellbeing	0.17	0.39*	0.06
Gender	5.84*	5.13†	6.37†
Age	0.23	1.67	-0.50
Parental Education	-0.67	-1.19	-0.36
Overall Health	1.44	2.67†	0.71

† =  $p < .10$ ; \* =  $p < .05$ .

#### 4. Discussion

The purpose of this study was to examine the relationship between mental wellbeing and HRQOL among youth in rural Mexico. Due to the various mental health issues currently prevalent in Mexico (Benjet et al., 2017; Espinola-Nadurille et al., 2010; Perkins, Wood, Varjas, & Vanegas, 2016), this study sought to shed light on the relationship between these relatively new constructs of mental and physical health (Castellví et al., 2014; Kantor, Grimes, & Limbers, 2015; Quittner et al., 2010). We hypothesized that mental wellbeing would be positively correlated with HRQOL.

Our regression analyses show that mental wellbeing scores significantly predicted scores on the physical subscale of the PedsQL. This finding is supported by previous research on physical activity and mental health in adolescents (Biddle & Asare, 2011; Snyder et al., 2010). Biddle, Ciaccioni, Thomas, and Vergeer (2018) reviewed multiple meta-analyses and concluded that a strong causal relationship exists between physical activity and cognitive functioning. Additionally, they concluded a partial causal relationship exists between depression and physical inactivity for youth. Although we can make no claims of causality, there is evidence from this study suggesting that alternative methods of measuring mental and physical health (i.e., Quality of Life and Mental Wellbeing) demonstrate a similar relationship among our sample of Mexican youth.

Mental wellbeing was not found to be associated with either the full PedsQL scale or its psychosocial subscale. This was somewhat surprising given the theoretical overlap between mental wellbeing and health-related quality of life, and the fact that both scales measured components of mental and emotional health. Indeed, prior research on these constructs in the US and Mexico led us to believe there would be a significant correlation among them (Benjet et al., 2016; Nelson et al., 2014). The lack of a relationship may be partially explained by the unique aspects of our population's environment, society, and culture. For example, many families in Michoacán live in a low SES rural environment, often struggling to consistently have their basic needs met. This may explain the higher number of "at risk" scores on the PedsQL within our sample. By way of comparison, Nelson et al. (2014) studied a high-risk population of youth in a large residential foster care treatment center in the U.S., and only 13% were at risk on the physical subscale of the PedsQL, compared with almost 20% in our sample. The percentage of at-risk youth in the US study was also lower across both the psychosocial subcategory (19.7% vs. 24.3%) and total score (17.9% vs. 22.5%). Consistent with Maslow's Theory of Human Motivation (Maslow, 1943) there could be a greater focus on meeting basic needs rather than achieving social and mental wellbeing within our sample. Furthermore, as Villarreal and Yu (2017) have noted, the drug trafficking and homicide rates in Mexico have made a substantial impact on the social and mental wellbeing of communities. Increased fear, anxiety, and exposure to violence may be impacting mental wellbeing and quality of life among our sample in unmeasured and unforeseen ways. Future studies looking at mental wellbeing and quality of life among Mexican youth should include information on substance use and exposure to violence in an effort to more clearly understand the relationship between these constructs. From a practical standpoint, if future studies suggest that our unexpected findings might be tied to the youth's challenging environment, the use of positive, strength-based measures such as mental wellbeing (instead of mental illness) and health-related quality of life (instead of sickness) could be quite important. Supportive, positively-framed measures that highlight strengths instead of weaknesses could provide an empowering lens through which to look at their lives. Indeed, substantial literature recommends the use of encouragement and hope when working with individuals (Main & Boughner, 2011; Wong, 2015).

Surprisingly, parental education, which was used as a proxy for socioeconomic status in this study, was not significant in any of the models. Socioeconomic status often plays a key role in individuals' health behaviors (Chen & Miller, 2013; Milas, Klaric, Malnar, Šupe-Domic, & Slavich, 2019; Nandi, Glymour, & Subramanian, 2014). It

is likely that the homogeneous economic status of families from which our sample was drawn is the explanation for this unexpected result. Gender, on the other hand, was a significant predictor for total scores on the PedsQL, and a marginally significant predictor in both subscales, suggesting that being female was predictive of poorer HRQOL. This is consistent with previous research on the topic of mental health in Mexico (Nuñez et al., 2016), specifically concluding that females may be more negatively impacted by rigid societal definitions of gender roles (Fragoso & Kashubeck, 2000; Nuñez et al., 2016; Piña-Watson, Castillo, Ojeda, & Rodriguez, 2013; Watkins et al., 2013) as well as tend to report more internalizing as opposed to externalizing behaviors. The gender differences could also be due to the unique cultural expectations among adolescent males and females, which are particularly salient in rural migratory communities of Central Mexico (Hoffman, 2014). These include financial expectations for young men in the form of migration (Kandel & Massey, 2002), as well as norms surrounding dating violence and high-risk sexual behavior, where communities tend to be more lenient towards males than females (Ayers, Marsiglia, Hoffman, Urbaeva, & Booth, 2012; Rueda, Hoffman, & Grytza, 2019).

#### 4.1 Limitations

One of the limitations of this study was the cross-sectional nature of the research design. We outlined and assessed how mental wellbeing could impact quality of life, but it is possible that quality of life is actually the driving force behind mental wellbeing. Future studies using longitudinal data could more fully flush out the relationship between these two constructs. Also, due to the limited amount of research that has looked at these constructs among youth populations in Mexico, future studies should consider in-depth qualitative interviews that focus on not only the nuances of mental wellbeing and health-related quality of life, but also their interconnectiveness. A second limitation is that our sampling methodology precluded youth participation among those who had dropped out of school, work instead of go to school, or otherwise were not attending school. Due to our non-random sampling approach, these findings should not be generalized to other youth populations or assumed to represent all youth in rural settings. Replication studies are needed to verify if similar results are present in other youth populations throughout the country. Despite its limitations, this study does provide a first-look at mental wellbeing and health-related quality of life among an understudied population of youth in Central Mexico.

#### 4.2 Conclusions

If replicated, our results may have important implications for health professionals, social workers, researchers, policy makers, and other individuals living in Mexico. On the micro-level, our findings can be useful to address clinical needs of the individual. For example, the direct link between physical activity and mental wellbeing supports treatment interventions for improving physical health. Implications on the mezzo-level could include family therapy and similar small-group supports that take into consideration the unique social and physical environment in which youth in Michoacán live, which may be impacting youths' psychosocial quality of life. Macro-level implications of this study suggest a continued focus on community programs to improve physical and mental wellbeing of youth. For example, solid physical education programs where students set health goals and strive to achieve them would be an important asset to youth in a time when physical education has become less of a priority in public schooling. In addition, supporting or improving community healthcare systems could be very impactful as chronic illness has been linked to low HRQOL for adolescents and adults (Busija, Tan, & Sanders, 2017). Establishing relationships between healthcare centers and youth in the community is particularly important in rural areas of Central Mexico where research suggests that healthcare providers often struggle to meet youth-specific needs and fail to teach about preventative care in their communities (Hoffman, Rueda, & Beasley, 2019). Providing supports early in life is the most logical approach to preventing future problems with chronic illnesses and low HRQOL. For all levels of work, we suggest the Ecological Systems theory be used to guide this important effort because it accounts for culture, community, and societal attributes of human behavior (Bronfenbrenner, 1989), which aligns with the goals and purposes of measuring HRQOL. In brief, we encourage continued research among Mexican youth in rural, underserved areas of Central Mexico such as Michoacán in order to further support strengths-based approaches for improving both their mental wellbeing and quality of life.

#### Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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