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THE ASSOCIATION BETWEEN SOCIAL CAPITAL AND DEPRESSION: CROSS  
SECTIONAL RESEARCH

By

Abdulrahman Abudawood

Claremont Graduate University

2021

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## **Approval of the Dissertation Committee**

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Abdulrahman Abudawood as fulfilling the scope and quality requirements for meriting the degree of Doctor of Public Health.

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## Abstract

### THE ASSOCIATION BETWEEN SOCIAL CAPITAL AND DEPRESSION: CROSS SECTIONAL RESEARCH

By

Abdulrahman Abudawood

Claremont Graduate University: 2021

**Introduction:** Mental health is an integral component of a healthy and balanced life, and deterioration in mental health has a significant impact on the quality of life. Being an active member of the community can positively impact personal mental health and emotional well-being. The World Health Organization (WHO) considers Social Capital (SC) a significant determinant of individual mental health. Despite that, there are limited studies analyzing the association between SC and the prevalence or severity of depressive symptoms experienced by suburban residents of the United States. This study aimed to assess the relationships between the six dimensions of SC introduced by the world bank in the Integrated Questionnaire for the measurement of Social Capital (IC-SC) and depression among adults living in the city of Rancho Cucamonga. **Methods:** Data from the 2019 city of Rancho Cucamonga Quality of Life Survey were analyzed. The logistic regression model was adopted to examine the relationships between SC dimensions and the risk of depression diagnosis using odds ratios. A linear regression model was used to assess the relationship between SC dimensions and the experience of depressive symptoms. **Results:** Among 1212 subjects, 24.4% reported a diagnosis of depression. Trust and Solidarity dimension and Social Cohesion and Inclusion dimension were significantly associated with the diagnosis of depression and experience of depressive symptoms ( $p < .05$ ). The Groups and Networks, Collective Action and Cooperation, and Information and Communication dimensions showed no significant association with diagnosis of depression or experience of

depressive symptoms. The Empowerment and Political Action dimension showed a significant positive association with the diagnosis of depression and experience of depressive symptoms ( $p < .05$ ). **Conclusions:** SC can be seen as a valuable mental health resource, but some forms of it may be mentally harmful. The lower cognitive SC the participant has, the greater the risk for depression the participant would have. However, involvement in political actions such as signing a petition, participated in a march, rally, or a protest elevate the risk of developing depression. Future research should formally assess the mechanisms linking SC with depression and use a longitudinal design to address concerns about reverse causation.

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## **Introduction**

The concept of “Social Capital,” according to the Organization for Economic Co-operation and Development (OECD), refers to the key networks, understandings and values shared and facilitating cooperation, either internally or externally across groups (OECD, 2001). It has been evidenced that social capital maybe a key determinant of an individual’s risk of adverse physiological as well as psychological health outcomes – particularly depression (Wang et al., 2018).

This dissertation aims to provide a comprehensive and detailed discussion on the existing research concerning the association between social capital and depression. This study also describes the methodological and data analytical procedures and findings of the association between social capital and symptoms of depression experienced by suburban residents using secondary data from a community survey conducted in the City of Rancho Cucamonga (CRC), California.

## **Background**

Depression is the umbrella term given to a range of adverse mental health outcomes associated with feelings of sadness, low mood and loss of interest towards performing tasks which are typically considered pleasurable (Paykel, 2008). According to the World Health Organization (WHO, 2020), approximately 264 million of the global population are afflicted with depression. While depression can impact any individual, certain demographic factors, such as age and gender, may demonstrate stronger associations with the likelihood of experiencing mental health symptoms (Breslau et al., 2017). Analyses from a national health interview survey 2019 revealed that 18.5% of adults reported symptoms of depression in the past two weeks, 21.8% of females

and 15% of males. Reports of experiencing symptoms of depression in the past two weeks was highest among adults aged 28-29 (21%) and lowest among those aged 30-44 (16.8%) (*Products - Data Briefs - Number 379 - September 2020, 2020*).

The social determinants of health are also associated with increased depressive symptoms and enhanced risk of depression. These social determinants include low income or poverty, low educational attainment, and low social capital in terms of lack of social support and absence of social networks. Low social capital has been evidenced to have a strong influence on an individual's depression risk (Dev & Kim, 2020). Social capital is associated with the efficient functioning of social networks via interpersonal relationships and a sharing of a collective identity, norms, values, cooperation, reciprocity and trust across members (Tariq et al., 2019). High social capital has been associated with increased quality of life and wellbeing across populations, resulting in improved dietary intake, increased physical activity, adequate rest as well as lower rates of smoking and alcohol consumption. Thus, given the multiple health benefits derived from SC and high global prevalence of depression, an investigation of the potential impact of SC on the incidence and risk of depression is needed (Cohen-Cline et al., 2018).

## **Rationale**

Without treatment depressive symptoms can increase the risk of adverse psychological outcomes such as suicide ideation, suicide and self-harm among affected individuals. Such risks may be further aggravated among individuals belonging to specific demographic groups (e.g. females, adolescents, and older adults) or experiencing stressful life events (e.g. economic hardship, poor health; Wu et al., 2016). Currently, there are limited studies analyzing the association between SC and the prevalence or severity of depressive symptoms experienced by suburban residents, where the environment is psychologically damaging the most (Oliver, 2003).

Thus, the adverse risks associated with uncontrolled depression coupled with the dearth of evidence exploring the role of SC in impacting the same, forms the key rationale underlying this study (Sun et al., 2020).

The prevalence of depression among adults in California was 19% in 2017 and 17.8% in 2018, compared to 11.7% in 2012, which is indicative of increasing prevalence. Additionally, the highest prevalence of depression was observed among females (22.0%), those aged 55 to 64 years (21.4%), college students (22.3%) and those earning less than \$20,000 annually (24.3%) (Slone, n.d.). To date, few studies have explored the association between SC and depression among residents of suburban cities in the US. Thus, the high prevalence of depression coupled with the lack of adequate research specific to this population forms the key rationale for this research.

### **Aims and Objectives**

The aim of this research is to examine the association between social capital and depression, among adults living in a suburban city. This research is based upon the following research objectives:

1. To evaluate the prevalence of diagnosed depression and severity of depressive symptoms, among adults living in a suburban city.
2. To examine the association between social capital and the diagnosis of depression as well as the severity of depressive symptoms among adults living in a suburban city.
3. To explore the moderating roles of certain demographic factors, such as gender and age, in influencing the impact of social capital on a depression diagnosis and depressive symptoms.

## **Research Questions**

This research aims to provide evidence-based answers to the following research questions:

1. What is the prevalence of diagnosed depression and the severity of depressive symptoms among the residents of a suburban city?
2. What is the relationship between social capital and the diagnosis of depression as well as the severity of depressive symptoms experienced by the residents of a suburban city?
3. What is the role played by specific demographic factors, such as gender and age, in influencing the impact of social capital on diagnosed depression and depressive symptoms?

## **Research Significance and Implications**

Obtaining primary data coupled with secondary analysis specific to the population residing in our sample city (CRC) will be of key significance since it will provide an improved understanding of the prevalence, severity, and dynamics of depression in this region and similar regions. Understanding the role of SC in this context may provide useful information to healthcare organizations regarding the importance of addressing social support as a key health determinant when working with persons suffering from depression (Daoud et al., 2016). Additionally, the scope of this research includes exploring the influence of other key determinants on the severity of depressive symptom to inform policymakers as well as healthcare professionals in developing comprehensive, multidisciplinary healthcare interventions for the residents of suburban cities (Perazzo et al., 2020).

## **Literature Review**

### **Depression: Social Determinants of Health**

As discussed previously, the social determinants of health, according to Cross-Denny and Robinson (2017), are the conditions and forces external to the control of an individual, group or community, which play a significant role in shaping the state of health, quality of life and wellbeing. These factors include educational level, income status, status of employment or unemployment, availability of social support networks as well as the social status held by the community one belongs to.

As per the existing repertoire of evidence-based literature, the presence or absence as well as the extent to which individuals and communities are exposed to various social determinants of health, significantly impact their quality of life, as well as the risk and burden of adverse psychological diseases such as depression (Cross-Denny & Robinson, 2017). The cross-sectional data by (De Oliveira et al., 2017), aimed to assess the key social determinants of health influencing depressive symptoms among Hispanic women. The cross sectional study evaluated 280 women, aged 18 to 50 years within a Hispanic community in South Florida. As per the findings, the prevalence of depression among the women was 37.5%, of which, the social determinants of health, such as residing with spouses, the status of health and educational level were found to significantly predict development of the depression. Likewise, a similar study was conducted by Linares, Azuine and Singh (2020), which aimed to examine the key social determinants of health responsible for influencing the mental health status of women who were mothers of children aged 0 to 5 years. This study examined cross-sectional data of 19,127 mothers of children aged 0 to 5 years of age in the United States, who were a part of the National Survey of Children's Health conducted from 2016 to 2017. The role of social determinants on mental health status was

examined using a logistic regression model across participants who had reported their mental health to be 'poor' or 'fair' within this survey. Based on the findings, the prevalence of poor mental health status across mothers of children aged 0 to 5 years within the United States between 2016 and 2017 was 4.5%. Poor status of mental health across this population was significantly associated with socio-demographic factors as well as social determinants including young adulthood (adjusted odds ratio [AOR]: 18–20 years: 2.77, 95% confidence interval [CI]: 1.35–5.67; 21–24 years AOR: 2.14, 95% CI: 1.22–3.73, and 30–34 years AOR: 1.97, 95% CI: 1.13–3.43), low social capital (AOR:1.97, 95% CI: 1.04-3.73), birth place of the United States (AOR: 2.31, 95% CI: 1.48–3.63), poor status of physical health (AOR: 8.69, 95% CI: 5.81–13.02), and poor income (AOR: 1.97, 95% CI: 1.04–3.73) (Linares et al., 2020).

While the findings by De Oliveira et al. (2017), demonstrate the applicability of findings pertaining to social determinants and depression across a United States based population, the findings by Linares, Azuine and Singh (2020), provide interesting insights into additional determinants, which can be implied as key predictors of depression prevalence across the population residing in the United States' suburban cities. There were identified to be: low income and lack of adequate healthcare services or resources, such as food insecurity. Individuals with limited income or living in poverty, are at a higher risk of experiencing depressive symptoms since they will less likely be able to afford or access the intervention required for timely diagnosis and treatment (Schor, 2018). Further, a lack of adequate healthcare services due to limited access and inadequacy of resources manifested in the form of food insecurity or the absence of healthy, sufficient, and nutritious food, is also likely to cause nutritional deficiencies, malnourishment, increased risk of infections, chronic illnesses leading to further financial and economic burden and thus, depression (Assari & Caldwell, 2018). However, despite the potential applicability and

transferability of the findings presented by De Oliveira et al. (2017) and Linares, Azuine and Singh (2020), the target population is primarily composed of females. This research limitation thus hinders the ability of the findings to be generalized across individuals of all genders. Additionally, the study by Linares, Azuine and Singh (2020), also does not focus specifically on depressive symptoms but rather poor status of mental health, which in turn, further hinders the applicability of findings across the population and objectives targeted by this study.

With this regard, the study by Assari (2017) aimed to examine the social determinants influencing depression across American adults, especially focusing on factors like socioeconomic status, age and gender. The study comprised of the sample recruited for the National Survey of American Life (NSAL) with 891 and 3570 Americans belonging to the White and African American community. The independent variables included gender, age, socioeconomic status, employment, income, education and marital status. The Composite International Diagnostic Interview (CIDI) was used for the purpose of evaluating the risk of Major Depressive Episode (MDE) during a period of 12 months. Results from the logistic regression models revealed that income and race were the key social determinants associated with the depressive symptom experience in the past 12 months. However, gender was found to strongly interact with income, in which, low income status was found to be significantly associated with the risk of depression in women only. Additionally, the effects of low income on the severity of depression were found to be varied by race. For instance, high income was a risk factor for African American males whereas high income and high educational levels were found to yield a protective factor for White females and African American females with regard to depression. The authors relate this heterogeneity in the effect of income across groups to the availability of other resources. Hudson et al. have pointed that SES has negligible health effects when discrimination is high, implying that exposure to racial

discrimination may reduce the protective health effects of high SES among African American men. The authors also noted that men are more vulnerable to discrimination than women. Another reason could be the high costs of upward social mobility which African American men encounter when moving up in social ladder. Thus, these findings demonstrate the complexity of depressive symptoms experienced by individuals in the form of interactions of social determinants with race and gender (Assari, 2017). The time duration of 12 months also demonstrates limited scope of the findings of the study in exploring the long-term associations between demographic-social determinant intersections and depression severity across the American population.

While the inclusion of a United States population improves the applicability of findings to this study, there is still a need for further comprehensive research on the association between social determinants and depression. That's why we will review further existing research on the possible association between depression and social determinants of health from international literature to provide a background on the topic.

A systematic review and narrative analysis conducted by Brown et al. (2017) aimed to explore the key social determinants influencing the prevalence of depression and behaviors associated with suicide across individuals residing within the Caribbean community. The systematic review included 55 articles across eight databases, comprising studies with a participating population of more than 50 participants from Caribbean regions, published between the years 2004 and 2014. Based on narrative synthesis conducted by the authors, the findings reported that the key social determinants associated with depression across the Caribbean population were age, gender, education, marital status and suburban residence. In addition, gender differences in depression and depressive symptoms were widely reported— where the prevalence of depression was higher in women, as compared to men, who also demonstrated a higher

prevalence of suicidal behaviors. Age was another socio-demographic factor associated strongly with depression, in which, older adults showed a higher prevalence of depression. In contrast, marriage or the presence or availability of social support networks in the form of a partner, was found to be a protective factor that mitigated depression across Caribbean individuals (Brown et al., 2017).

Likewise, similar results were observed in a cross-sectional study by Wong et al. (2017), which aimed to explore the mental health status of asylum refugees and asylum seekers residing in Hong Kong, and the impact of the social determinants on mental health. This study comprised 374 African refugees and asylum seekers, who participated in a survey which measured social determinants of health such as: self-perceived health status, personal health behaviors, and social demographics of the individual as well as their social experiences. Within this group, 36.1% of the participants screened positive for symptoms of depression, and individuals who were residing within a family were found to be at a lower odds for a positive depression diagnosis (OR = 0.25, 95%CI = 0.07–0.88). Further, those participants who demonstrated higher scores of being discriminated were also found to be at a higher odds of being diagnosed with depression (OR = 1.17, 95%CI = 1.10–1.24). Thus, based on these findings, it can be implied that the key social determinants associated with the prevalence of depression across asylum seekers and refugees, were: lack of social support networks, lack of social advantage and presence of familial relationships (Wong et al., 2017).

Findings presented by Brown et al. (2017) and Wong et al. (2017) provide information on the various social determinants which can be implied as the likely predictors of depression. According to the results from studies by Brown et al. (2017) and Wong et al. (2017), these can comprise of: social support, social advantage, education and housing status. Indeed, it has been

evidenced that those who are devoid of any social support networks, such as peer groups as well as family members such as parents or spouses are likely to be devoid of emotional support in life, which further, paves the way for loneliness and a high risk of depression and suicide (Erzen & Çikrikci, 2018). Additionally, individuals belonging to minority groups, such as Africans, as evidenced in the reviewed studies, are also likely to have higher risk of poor mental health outcomes like depression, anxiety, emotional distress, loneliness and suicide ideation, since they are continuously susceptible to discrimination, stigma, maltreatment and judgmental behavior within the mainstream society (Bailey et al., 2019). Education attainment is also a predictor of depression symptom risk among individuals with a low educational level, who may be less likely to access self-management strategies and resources necessary to control depressive symptoms. Lastly, poor housing conditions such as homelessness are also likely to increase the risk of depression since they deny individuals access to adequate social support, nutrition and clinical services as well as a safe environment, resulting in poor psychological and physiological health outcomes (World Health Organization et al., 2010).

Despite the comprehensiveness of their findings, the studies by Brown et al. (2017) and Wong et al. (2017) are also prone to several limitations with regards to methodological merits. The Brown et al. (2017) paper is a systematic review, and despite this methodology is useful for the purpose of obtaining a detailed and extensive overview of clinical phenomenon, systematic reviews are also prone to risks such as publication bias, where findings from studies that report larger effects are more likely to be identified, summarized and subsequently included in the systematic review study than studies that report smaller effect sizes (Long et al., 2020). Further, the lack of statistical analysis, such as a meta-analysis or confidence intervals, also raises concerns as to whether the reviewed findings are prone to bias by the authors (Hong et al., 2018).

Nevertheless, both studies by Brown et al. (2017) and Wong et al. (2017) are also prone to limitations like absence of applicability and transferability of findings to the population of United States.

### **Depression: Socio-Demographics: Age, Gender**

The associations between demographics and depression were briefly explored by Brown et al. (2017) who found a higher prevalence of this issue across women and adolescents. Further, in the report by Brody, Pratt and Hughes (2018), women in the United States were twice as much as likely to experience depression (10.4%) in comparison to men (5.5%). Additionally, Asians were found to have lower rates of depression in compared to Hispanics, non-Hispanic Blacks and non-Hispanic whites. The higher rates of depression in women may be associated with the dual burden of familial as well as occupational pressures they are encountered while the same in adolescents may be associated with issues of academic, parental and peer pressure prevalent in this stage – all of which may contribute to poor mental health outcomes (Verma & Mishra, 2020). However, depression may still be underreported across certain age groups such as the elderly, primarily due to issues like loneliness or disabilities which may prevent them from accessing diagnostic services. Additionally, cultural differences may exist in terms of the severity of depression across populations due to the unique life experiences encountered by each type of ethnicity. For instance, culturally diverse minority groups such as Hispanics and African Americans have experienced a history of discrimination, exploitation, trauma, stigma, stereotypes and prejudice which continue to persist even today, which in turn, are likely to contribute to emotional distress, poor mental health, depression and suicide ideation (Russell et al., 2018).

## **Social Capital: Six Dimensions**

This research focused on exploring the association between social capital and the presence of depression as well as depressive symptoms within a suburban community. The concept of social capital has encountered multiple definitions and concepts over the years. However, the World Bank (2020) introduced a tool to generate a quantitative data on various dimensions of social capital entitled the Integrated Questionnaire for the Measurement of Social Capital (IQ-SC). The six dimensions outlined by the World Bank (2020) serves as the key focus for this research and it was utilized as a guide to measure the social capital. As per the six dimensions enlisted by the World Bank (2020), social capital can be implied as efficiency in the functioning of social networks and groups via interpersonal relationships, sharing a sense of collective norms, understanding, and identity, and demonstrating a sense of trust, cooperation and reciprocity amongst each member.

Social capital can be considered the measurement of the value and utility of both intangible as well as tangible resources, and the association between these resources and the relationships held between groups, individuals, various social networks or a community (Hamilton et al., 2016). While tangible resources comprise private properties or spaces for the public, intangible resources can comprise human capital, interpersonal relationships or the various stakeholders influencing the status of a community. Thus, social capital is widely used for the purpose of explaining the rate of improvement or deterioration in the performance of diverse communities, enhanced managerial competency and growth within organizations, the quality of relationships between supply chains, the profits or losses incurred from strategic collaborations and the evolutionary growth and development within communities and groups. For this reason, lack of social capital

has been associated with adverse health outcomes, one of which, being associated with the quality and wellbeing of psychological health (Carrillo Álvarez & Riera Romaní, 2017 ; Paul et al., 2016).

One of the first dimensions of social capital is ‘groups and networks.’ Understanding and examining the networks and groups via which individuals gain access to services and resources essential for the collective achievement of shared objectives forms the crux of social capital. These can consist of informal networks such as unregulated and spontaneous exchanges shared within groups and individuals in their daily lives as well as the availability of cooperation, coordination, and collaboration individuals receive from their community members for the purpose of maximum utilization and accessibility of resources and services (Bizri, 2017). Social network and groups can also comprise of highly formal and structured relationships, as seen in community clubs, welfare groups, unions or local cooperatives such as farmer’s markets. While these networks consist of highly structured chains of command and hierarchy, they also demonstrate the potential to generate a sense of trust, shared values, cooperation and self-help practices within a community and between community members (Sanyal & Routray, 2016).

The dimension of solidarity and trust in social capital refers to the extent and quality with which individuals demonstrate reliance and dependence over the individuals with whom they engage in social relationships, such as acquaintances, neighbors, peers, relatives or even strangers. The dimension of trust and solidarity is essential for understanding the complexity and quality of relationships held between individuals and their social community (Sseguya et al., 2018).

The third social capital dimension of cooperation and collective action provides a more comprehensive view of the nature of relationships held between members of a community since it provides an in-depth exploration on how community members work with each other for the purpose of collectively managing a crisis or a joint objective. This dimension of social capital is

also centered on exploring the consequences experienced by community member if participation and social norms within a community are violated (Vincens et al., 2018).

The information and communication dimension of social capital implies the availability of adequate mechanisms by which vulnerable groups and members within a community can voice their concerns regarding issues impacting the quality of their life and wellbeing. The fifth dimension of social inclusion and cohesion within social capital implies the prevalence of opportunities and mechanisms by which a community encourages a sense of collective participation, engagement, communication, solidarity across various minority as well as majority groups (Maass et al., 2016). These can comprise of funerals, weddings, parties, community meetings, community or volunteering activities, festivals, workshops, campaigns and conventions.

Lastly, the dimensions of political action and empowerment as a part of social capital implies the extent and ability with which members within a community have the ability to demonstrate control over the wider processes, institutions and organizations directly associated with wellbeing, health and quality of life (Jennings & Bamkole, 2019). This dimension can be observed within a smaller scale, such as individual or group power within local associations, or even on a larger scale, such as within regional, state or local governments. Nevertheless, understanding each dimension of social capital is thus necessary for the purpose of exploring how the same impacts the quality of life and wellbeing within individuals of a community, especially with regards to adverse mental health outcomes such as depression (Pérez-Macías et al., 2020).

### **Social Capital and Depression**

Currently, there exists a limited amount of recent evidence concerning the association between social capital and depression in suburban cities of the United States. The cross-sectional analysis with secondary data by Daoud et al. (2016), aimed to assess the relationships between

bridging, bonding and linking based dimensions of social capital cross immigrants residing in the neighborhoods of Toronto, in Canada. The authors used existing cross-sectional data from the Neighborhood Effects on Health and Well-Being (NEHW) study, which comprised of a sample of 916 immigrants as well as another existing study, comprising of 600 immigrants residing in a low income-based neighborhood (IRN). Logistic regression model was used to examine the associations of depression and social capital with assessments of the Epidemiologic Studies Depression Scale (CES-D) and the social capital dimensions of bonding (social cohesion and control), linking (participation in political activities) and bridging (group membership). The prevalence of depression was 21.4% in the NEHW and 22.9% of the IRN based study samples. Each of the study samples presented varied results in terms of the association between social capital dimensions and depression. A decreased level of social cohesion or bonding was linked to higher risks of depression in the NEHW sample. In comparison, lower engagement in linking or participation in political activities was found to be associated with higher prevalence of depression within the IRN study sample. Not only do the findings of this study shed light on the role of specific social capital dimensions in influencing depression, but they also demonstrate that different groups of the same community – in these immigrants – may demonstrate variances with regards to these dimensions (Daoud et al., 2016). Indeed, a lower level of social cohesion or bonding between individuals within the community or between interactions of an individual with other members in the social environment has been evidenced to result in greater risks for loneliness, isolation and thus depression. Additionally, reduced participation in political activities is also likely to reduce the ability of individuals to empower and motivate themselves to take control over their own self-management care strategies, thus resulting in poor ability to thrive under negative lived experiences, poor health and wellbeing and thus depression (Landstedt et al., 2016).

A similarly study with SC measured in different dimensions was conducted by Li et al. (2017), which aimed to assess the impact of migration on the relationship between depression and social capital across elderly individuals residing in China. The study adopted a stratified, multistage and cluster form of sampling where elderly migrants residing in Hangzhou, during the months of May and August, in the year 2013. Information from participants was collected with the help of face-to-face interviews via a standardized questionnaire measuring social capital dimensions including reciprocity and trust and support from individuals as well as social contact. The prevalence of depression was evaluated with the instrument of the Geriatric Depression Scale-30 (GDS-30). Within the population of elderly, migrants had decreased levels of social contact [OR = 3.27, 95% CI (2.70–3.97)], reciprocity [OR = 1.55, 95% CI (1.29–1.87)], generalized trust [OR = 1.34, 95% CI (1.10–1.64)] and support obtained from individuals [OR = 1.96, 95% CI (1.61–2.38)]. It was also observed that elderly who were migrants were more likely to be at risk of negative mental health outcomes such as depression [OR = 1.85, 95% CI (1.44–2.36)] in comparison to elderly residing in suburban localities in China. Thus, the findings of this study proved to be useful in demonstrating how factor like social status, in this case, minority status due to immigration, can have detrimental impacts upon one's mental health as well as the surrounding status of social capital (Li et al., 2017).

The study by Li et al. (2017) also demonstrated the role of other social capital dimensions, such as social contact, trust, reciprocity and individual support on the severity of depression symptoms experienced by individuals. Indeed, a low level of trust and ability to reciprocate or rely upon the support provided by one's social surroundings is likely to drive one towards decreased social engagement, social isolation, loneliness, poor mental health and wellbeing and thus, resultant depression, distress and tendency towards self-harm and suicidal ideation. Similar

findings were observed, in the study by Adjaye-Gbewonyo et al. (2019) which aimed to assess differences in the prevalence of depression and social capital among elderly adults residing in both rural as well as suburban settlements across Ghana and South Africa. The authors relied on cross sectional survey data, comprising of 3,148 South Africans and 4,209 Ghanaians, in the age group of 50 years and more, from the World Health Organization (WHO) Study on Global AGEing and Adult Health (SAGE). Differences in the association between rural and suburban populations across suburban and rural regions were analyzed using confirmatory factor and exploratory analysis as well as structural equation models. Suburban dwelling adults from Ghana were found to have lower levels of trust and sociability (standardized mean difference: -0.24, and -0.38) while rurally residing South African adults were found to demonstrate lower community engagement but higher levels of trust and sociability, respectively (standardized mean difference: -0.33, 0.30, and 0.17) (Adjaye-Gbewonyo et al., 2019).

These findings demonstrated how the demographics of a population, in terms of geographical location, can moderate the role of social capital in influencing the severity of depressive symptoms within a population. For instance, due to variations in lifestyles and nature of employment, suburban dwelling individuals may have reduced opportunities to engage and trust in the relationships prevalent in their social surroundings thus resulting in variances across depressive symptoms as compared to rural dwelling individuals. Similarly, due to a scarcity of resources, individuals from rural regions are likely to find it difficult to engage in community activities, thus resulting in depressive symptoms and experiences different from suburban dwellers (Archuleta et al., 2020).

Findings from the reviewed literature provide extensive insights on not just the association between depression and social capital, but also on the possible differential influences of social

determinants across varied groups of populations. However, a number of limitations were observed with regard to these studies. Despite the piece of evidence each of these studies provides in the association between social capital dimensions and depression, the findings are not directly applicable to populations in California or the United States, in general, since most of the research was carried out in Ghana, China, South Africa or Toronto. Similarly, since our targeted population is diverse in nature, the findings of these studies may also be limited in terms of their generalization since they focused primarily on specific populations, such as the elderly or migrants. Many of these studies were also cross-sectional or qualitative and potentially highly subjective in nature thus raising concerns of bias or providing limited understanding of a cause-effect relationship between social capital and depression over time. There is t a need to conduct further primary research specific to the aims of this research design.

### **Research Limitations**

A number of limitations and gaps exist in the literature review. A major limitation is that most of the prior studies only focus on one or limited dimensions of social capital. In contrast, the present study focuses on all six dimensions of social capital defined by the World Bank, which enables to evaluate the influence of the full spectrum of SC on depression. Further, this study focuses not only on the diagnosis of depression but also depressive symptoms. There is also limited research which comprehensively discusses the role of social capital, social demographics as well as social determinants of health in collectively influencing the severity and frequency of the depressive symptoms experienced within a population.

## **Methodology**

### **Research Design and Methods**

This research evaluated the relationship between the prevalence of depression and depressive symptoms and determinants such as the social capital, income, age and gender. The research utilized a cross-sectional study design to explore the relationship between depressive symptoms and the determinants of SC as well as demographics like age and gender across a group of adult participants living, in the CRC.

### **Setting**

The City of Rancho Cucamonga is located in San Bernardino County of California, United States. According to the Census Bureau, the city population is estimated to be 176,379 in 2019. The racial makeup of the city in 2019 was 59.7% white (36.2% Non-Hispanic White and 23.5% Hispanic White), 9.7% other Hispanic, 12.6% Asian, 9.5% African American, and 8.5% from other, or two or more races. The median age was 35.9 with (66.4%) between the ages 18 and 64. The male to female ratio was 97.2 to 100, respectively.

### **Sampling**

#### **Data source**

Secondary data from the community survey conducted by the CRC was used for this research. This data was collected primarily by the city to evaluate the quality of life in the city, in part of the Healthy RC City-community partnership. The questionnaire was developed by Special Service for Groups organization (SSG) in 2016. The responses were collected electronically and in the form of hand-filled surveys between June and December of 2019.

## **Sample Strategy**

The CRC created an online version of the quality-of-life questionnaire on Survey123 website and broadcasted the survey over mailboxes, city websites, and community events targeting 2500 residents. One thousand seven hundred and two participants filled the survey between June and December of 2019, representing a 68% response rate.

## **Sample Recruitment**

The study sample comprised adults aged 20 years of age or older living in the CRC. The 1702 participants who filled out the survey met the following inclusion and exclusion criteria:

### **Inclusion Criteria**

1. Individuals who are living in the CRC based on their zip code
2. Individuals aged 20 years of age or older.

### **Exclusion Criteria**

1. Individuals who have not reported their zip code or their zip code is out of the city's range
2. Individuals who are younger than 20 years of age Measure

The presence and severity of depression in the sample was assessed using three questions from the Patient Health Questionnaire PHQ-9, a validated questionnaire comprising multiple choice questions based on the criteria given by the Diagnostic and Statistical Manual of Mental Disorders, which measures depression severity using a five item Likert scale (Urtasun et al., 2019). Social capital was assessed based upon the six dimensions of social capital outlined by the World Bank (2020), as tabulated (Table 1).

**Table 1: Six Dimensions of Social Capital**

<b>Social Capital Dimension</b>	<b>Rancho Cucamonga Quality of life survey question</b>
Groups and Networks	<ul style="list-style-type: none"> <li>• Below is a list of activities or programs you can participate in Rancho Cucamonga. Please let us know if you have heard of or participated in any of the following Rancho Cucamonga-specific activities or programs (16 count of city activities or programs)</li> </ul>
Trust and Solidarity	<ul style="list-style-type: none"> <li>• People in my neighborhood are helpful/willing to help.</li> <li>• I feel connected to my community.</li> <li>• In Rancho Cucamonga, everyone has an equal chance to succeed.</li> <li>• Most politicians in Rancho Cucamonga care what people like you think.</li> <li>• You can trust the police and law enforcement to do what's right.</li> <li>• People from different ethnic backgrounds are treated equally in this city.</li> </ul>
Collective Action and Cooperation	<ul style="list-style-type: none"> <li>• Been a member of an organized group that tried to make a difference in Rancho Cucamonga, such as one run through a school, the community, a religious organization, or political group.</li> <li>• Participated in any community service/volunteer work (worked without pay).</li> <li>• Worked with other people on an issue that affects Rancho Cucamonga or your community</li> </ul>
Information and Communication	<ul style="list-style-type: none"> <li>• Read about political issues in the news or on the internet</li> <li>• There are issues in your community or broader society that you care deeply about.</li> </ul>
Social Cohesion and Inclusion	<ul style="list-style-type: none"> <li>• Overall, I am happy/satisfied with my life right now.</li> <li>• I regularly keep in contact with people who are close to me. (friends, family, colleagues).</li> </ul>
Empowerment and Political Action	<ul style="list-style-type: none"> <li>• Shared your perspective on a social or political issue on the Internet, including emails, blogs, or social networking sites.</li> <li>• Signed a petition (paper or online) supporting a cause you care about.</li> <li>• Taken part in a march, rally, protest or demonstration on a national or local issue.</li> </ul>

The chronic health conditions were assessed based on the yes and no response to the question “Have you ever been told by a doctor, nurse, or health professional that you have any of

the following health conditions?” (i.e., asthma, high blood pressure, high cholesterol, diabetes (not during pregnancy), osteoporosis, overweight/obesity, cardiovascular/ heart disease, vision or hearing loss, and cancer. The presence or absence of any of the 9 chronic conditions was combined into two categories: 0 for no or single condition, 1 for more than one condition. Multiple chronic conditions was defined as responding with a “yes” to 2 or more of the 9 chronic conditions. Depression and anxiety were excluded as they are included in another variable. Physical activity was assessed based on the “yes” and “no” response to the question “During a normal week, other than in your regular job, do you participate in any physical activity or exercise that lasts at least 30 minutes?”

## **Data Analysis**

Descriptive statistics (e.g., means, standard deviations, frequencies and proportions) was employed to describe the general sample characteristics. Cronbach Alpha and exploratory factor analysis were used to evaluate the internal consistency and validity of SC (Lee et al., 2018). Logistic regression models were adopted to examine the relationships between SC and the risk of depression diagnosis using an odds ratio. To further assess the relationship between SC and experience of each type of depressive symptom, linear regression models was used. Possible confounders like variables of social determinants and demographic factors education, income, race, health, and marital status were adjusted in the logistic regressions and linear regression models. Lastly, potential interactions of SC with certain socio-demographic factors (age, gender, and ethnicity) on either the odds of depression diagnosis or the scores of depressive symptoms were explored with logistic regressions and linear regressions.

## **Research Validity**

Despite their convenience and ease of implementation, self-reported measures, such as the surveys being used in this research are prone to limitations like social desirability. Social desirability is the tendency of participants to provide an incorrect response to survey questions which they consider as socially appropriate or acceptable. This in turn results in a survey being prone to poor validity due to high risk of such bias (Curtis et al., 2020). To prevent the same issue, participants were fully communicated with concerning the details of the survey, the benefits or future significant implications of its findings and thus, the importance of honesty in responses (McCarthy et al., n.d.). To ensure that data were collected in a reliable manner, validated, nationally and internationally approved questionnaires, such as the Patient Health Questionnaire PHQ-9, Healthy RC Community Health Survey and the Six Dimensions of Social Capital were used.

## **Ethical Considerations**

To ensure that this study was implemented in an ethical manner without harming participants, the ethical principles of privacy and autonomy were complied with. The city obtained informed consent before collecting the information and assured participants that their participation would be voluntary in nature and their participation in this survey would not result in any changes in their existing lifestyle or occupations. Participants were also clearly informed about the purpose and details of the study, so as to ensure clarity (Miracle, 2016). Additionally, to ensure privacy and confidentiality, participants were ensured that all their personal details would be kept hidden and not be disclosed to any additional parties, organizations or stakeholders without their consent. To ensure security, it was ensured that the data obtained was stored in a secure database with limited access to only authorized personnel.

## Results

In this study, the data collected from 1212 subjects were analyzed. There were 857 women (70.7%) and 355 men (29.3%). Characteristics of study population are presented in Table 2. The overall prevalence of depression was 24.4% with significant gender difference (29.8% for women and 11.3% for men,  $p < .05$ ). Significantly higher depression prevalence was observed in low-income participants ( $p < .05$ ). Participants with multiple chronic diseases or participants self-rated poor physical health were more likely to report being diagnosed with depression than those counterparts without multiple chronic diseases or those who rated their physical health status as excellent, very good or good ( $p < .05$ ).

**Table 2: Depression diagnosis in Rancho Cucamonga adult residents according to gender, age, ethnicity, physical health, chronic diseases, education level, and income#**

Variables	No Depression n (%)	Depression n (%)	Total n (%)
<b>Gender (<math>\chi^2=42.41, p &lt; .0001</math>)</b>			
Men	234 (86.7)	36 (13.3)	270 (24.4)
Women	551 (66)	284 (34)	835 (75.6)
<b>Age (<math>\chi^2=4.57, p = .1019</math>)</b>			
20 – 44	314 (72.5)	119 (27.5)	433 (39.2)
45 – 64	339 (76.3)	105 (23.7)	444 (40.2)
65+	182 (79.8)	46 (20.2)	228 (20.6)
<b>Ethnicity (<math>\chi^2=3.06, p = .548</math>)</b>			
Non-Hispanic White	413 (74.4)	142 (25.6)	555 (50.2)
Hispanic	220 (74.8)	74 (25.2)	294 (26.6)
Non-Hispanic Black	57 (75)	19 (25)	76 (6.9)
Non-Hispanic AAPI	80 (81.6)	18 (18.4)	98 (8.9)

Non-Hispanic Others	65 (79.3)	17 (30.7)	82 (7.4)
<b>Physical Health (<math>\chi^2=22.62, p &lt; .0001</math>)</b>			
Good	751 (77.6)	217 (22.4)	968 (89.4)
Below good	66 (57.4)	49 (42.6)	115 (10.6)
<b>Multiple Chronic Diseases (<math>\chi^2=38.93, p &lt; .0001</math>)</b>			
Yes	310 (66.4)	157 (33.6)	467 (42.4)
No	525 (82.7)	110 (17.3)	635 (57.6)
<b>High Education (<math>\chi^2=1.72, p = .1899</math>)</b>			
Yes	505 (77)	151 (23)	656 (60.4)
No	316 (73.5)	114 (26.5)	430 (39.6)
<b>High Income (<math>\chi^2=12.89, p = .0003</math>)</b>			
Yes	343 (80)	86 (20)	429 (45.4)
No	359 (69.7)	156 (30.3)	515 (54.6)
<b>Marital Status (<math>\chi^2=42.37, p &lt; .0001</math>)</b>			
Married	566 (80.7)	135 (19.3)	701 (64.1)
Divorced	86 (61.4)	54 (38.6)	140 (12.8)
Never Married	95 (68.4)	44 (31.6)	139 (12.7)
Unmarried	23 (62.2)	14 (37.8)	37 (3.4)
Widowed	48 (84.2)	9 (15.8)	57 (5.2)
Separated	10 (50)	10 (50)	20 (1.8)

#Chi-square tests were performance to compare depression prevalence across categories of socio-demographic factors.

Social capital was summarized into 5 factors based on results from exploratory factor analysis as described in Table 1. Groups and networks dimension was combined with Collective action and cooperation due to high correlation between the two.

Results of logistic regressions linking each factor of SC to the log odds of depression diagnosis are presented in Table 3. There was a significant negative association between trust and solidarity with the diagnosis of depression. As the score of trust and solidarity increased, the prevalence of depression decreased ( $p < .05$ ). Similarly, there was a significant negative association between social cohesion and inclusion with the diagnosis of depression. As the score of social cohesion and inclusion increased, the prevalence of depression decreased ( $p < .05$ ). On the other hand, there was a significant positive association between empowerment and political action with the diagnosis of depression. As the score of empowerment and political action increased, the prevalence of depression increased ( $p < .05$ ).

**Table 3: Significant independent variables for depression diagnosis according to binary logistic regression analysis.**

Variables	OR	95% CI	<i>p</i>
Trust and Solidarity	0.66	0.5 – 0.88	0.004
Collective Action and Cooperation + Groups and Networks	0.84	0.65 – 1.09	0.1781
Information and Communication	1.21	0.94 – 1.56	0.1367
Social Cohesion and Inclusion	0.6	0.49 – 0.74	<.0001
Empowerment and Political Action	1.68	1.32 – 2.13	<.0001
Female vs Male	3.73	2.37 – 5.88	<.0001
Age20-44 vs Age45-64	1.38	0.9 – 2.1	0.1367
Age65+ vs Age45-64	0.75	0.44 – 1.26	0.2691
Multiple Chronic Diseases	2.67	1.81 – 3.92	<.0001
Divorced vs Married	2.03	1.23 – 3.36	0.0058
Separated vs Married	3.9	1.19 – 12.78	0.0248
High Education	1.1	0.75 – 1.61	0.615
Income 100K+	0.85	0.57 – 1.26	0.4197

Physical Health	1.61	0.96 – 2.72	0.0718
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Linear regressions were then employed to regress the sum scores of depressive symptoms on each SC factor (Table 4). The results were consistent between logistic regression and linear regression, where the diagnosis of depression was the outcome, and the sum of symptoms scores was the outcome respectively. Trust and solidarity as well as social cohesion and inclusion showed a negative significant association with depression symptoms, while empowerment and political action scores showed a positive significant association with depression symptoms. Collective Action and Cooperation as well as information and communication showed no significant association with depression.

**Table 4: Significant independent variables for depressive symptoms according to linear regression analysis.**

<b>Variables</b>	<b><math>\beta</math></b>	<b>SE</b>	<b><i>p</i></b>
Trust and Solidarity	-0.115	0.029	<.0001
Collective Action and Cooperation + Groups and Networks	-0.021	0.026	0.4044
Information and Communication	0.015	0.0237	0.5281
Social Cohesion and Inclusion	-0.213	0.026	0.0094
Empowerment and Political Action	0.066	0.021	<.0001
Female vs Male	-0.07	0.039	0.0696
Age20-44 vs Age45-64	0.216	0.042	<.0001
Age65+ vs Age45-64	-0.057	0.051	0.2609
Multiple Chronic Diseases	0.196	0.038	<.0001
Divorced vs Married	-0.08	0.056	0.152
Separated vs Married	0.031	0.138	0.8206

High Education	0.004	0.38	0.9003
Income 100K+	-0.061	0.039	0.12
Physical Health	-0.376	0.051	0.0058

The potential moderation effect of gender, age, and ethnicity were explored, and no significant interaction was observed in the analysis. When it came to the association between social capital and depression or depression symptoms, there was no difference between males and females, different age groups, or Hispanics, Non-Hispanic Whites, Non-Hispanic others.

## **DISCUSSION**

The study investigated the relationship between social capital and self-reported depression among suburban adult residents of the City of Rancho Cucamonga. Various studies indicate that depression affects individuals throughout the population, and neither age nor level of education was significantly associated with self-rated depression among participants in our survey in Rancho Cucamonga. However, the respondents' economic status was closely related to the reported depression, especially among men, confirming previous studies in California. Not meeting basic needs increased the risk of depression diagnosis and reporting of depressive symptom experience for both men and women. Financial problems can cause anxiety and mental distress. However, despite the economic importance of depression, social capital had a statistically significant relationship with the reported experience of depressive symptoms and a depression diagnosis.

In comparison to the prevalence of depression in California in 2019 (14.6%), we found that Rancho Cucamonga had higher depression rates, especially among women, and we also noticed gender differences in social capital. Women were less likely than men to trust their

neighbors and the government. Gender differences have also been found in the feeling of connectedness to the community.

Divorced and separated individuals were more likely to report depression compared to individuals with family social capital in a form of the spouse. This finding supports the theory that the family is a form of social capital that has special value (Bulloch et al., 2017; Ferlander et al., 2016a). It also supports research showing that the family is an important form of social capital in California, where civil society is weak and institutional trust is low (Sawhill, n.d.; *The Geography of Social Capital in America*, n.d.).

The importance of the family to mental health has been highlighted in several previous studies in California and elsewhere (Umberson & Thomeer, 2020). Marriage and family relatives provide resources in the form of emotional, informational and instrumental support, such as verbal encouragement, talking about issues and tips coping with stress and providing financial support. This finding is supported by evidence that marital status is a strong factor related to risk of depression and depressive symptom experience among adults in the United States (Horwitz et al., 1996). This may be especially true for women in Rancho Cucamonga who have less social capital than men as observed in this study, so they may depend more on their partners. In California, there is gender discrimination in the job market, as women, especially mothers, are often discriminated against by employers (Ruppanner, 2020). According to a survey of professional women, what might be called sexism in the Western workplace is normal in California labor relationships. There is widespread evidence that bullying and workload, which are more common among women, are linked to depression (Nolen-Hoeksema, 2001; Waugh, 2010). Given this, many women in Rancho Cucamonga and elsewhere may experience more mental anxiety than men due to gender discrimination, leading to depression.

The results of this study indicate that the lower social cognitive capital the participant had, the greater the risk for depression the participant would have. A sense of belonging and cohesion, neighborhood, and public and government trust were significantly associated with fewer symptoms of depression. In contrast, this study does not provide evidence for a linkage of community participation, volunteering, social interactions, or the structural social capital to risk of depression in terms of either diagnosis or depressive symptom experience.

Our findings suggesting that social cognitive capital is closely related to depression are consistent with previous literature and provide support for presumed social support and inequality mechanisms. Possible explanations suggest that social cognitive capital and depression are closely related because they involve psychosocial processes. Awareness of relationships, rather than objective interactions, can be critical to the risk of developing depression (Teo et al., 2013). For example, while the amount of social contact within a community may reflect an individual's real-world experience, it is a psychological sense of belonging to the community that most influences the risk of developing depression. This hypothesis has received some support in the literature (Santini et al., 2020). Indicators, such as perceived social isolation and perceived affiliation, are more closely related to depression than with social interactions.

It assumes cognitive and structural social capital about mental health through different pathways. Cognitive social capital lends itself more easily to mechanisms of social support and inequality that focus on psychological and social factors. Social support mechanisms rely on theories of social isolation and depression and define social capital as criteria for support and reciprocity in the social networking space and within those networks. The inequality mechanism assumes that as economic inequality increases, social capital decreases as citizens' sense of

fairness and justice diminishes. Depression is exacerbated by stress and anxiety over discrimination (Wickham et al., 2014).

In contrast to the above mechanisms, linking structural social capital to health often relies on a political and economic approach, which argues that social capital can affect access to resources (Claridge, 2018). Groups or individuals with high social capital can step in to protect themselves from budget cuts, address government or workplace policies, free up resources from those in power, or offset other financial problems.

Although research on social capital and health has become increasingly popular over the past fifteen years, systemic limitations, including confusion and selection bias, persist.

The results of this study also indicate that there may be downsides to social capital, as individuals who reported involvement in political actions such as signing a petition, participated in a march, rally, or a protest were more likely to report depression compared to individuals who didn't (Ni et al., 2020). This finding supports the claim that some forms of social capital may be particularly detrimental to some groups (Villalonga-Olives & Kawachi, 2017). However, this contradicts the more general finding that social capital is closely associated with better mental health.

These results contradict the literature that assumes that participation in political action is a resource that alleviates psychological distress and offsets some of the negative mental health consequences associated with disadvantaged social status (Sanders, 2001). However, this can be explained by the reason behind participating in political actions.

Participation in political action may involve more people who are under the pressure of discrimination, bullying, or unfair treatment as the feeling of unjust is a motive for taking political action (Verhulst, n.d.).

## **METHODOLOGICAL LIMITATIONS**

This study contains several methodological limitations that must be addressed. In sociological research, measurement errors are always possible. As in many other studies (Lefèvre et al., 2012; Vahter et al., 2007), a single-item scale was used for self-rated depression. Previous studies on the reliability and effectiveness of single-component measures of depression demonstrated that outcomes might vary by condition and population (Ahmad et al., 2014). A meta-analysis of studies in primary care patients found that single-item tests were less sensitive, and less than a third of depressed patients were correctly identified (A. J. Mitchell & Coyne, 2007). Recent studies of chronic pain patients have found that these measures can accurately identify depressed patients (Reme & Eriksen, 2010), while other studies have high sensitivity but low specificity (Carey et al., 2014; Turon et al., 2019). From the literature, we can conclude that individual questions were effective in screening depressed adults. In light of this, we analyzed it in relation to other aspects of major depressive disorder. This indicates that respondents with depression were more likely to experience depressive symptoms in the last thirty days compared to respondents without depression. While it must be taken care that our questions about depression have been formally verified, the association of the group of symptoms of depression among individuals with the diagnosis of depression indicates that our individual scale has been used as an appropriate measure of depression.

Measuring social capital is also a complex task. One of the most serious criticisms when it comes to social capital is that the measure does not match the theory (Carrillo Álvarez & Riera

Romaní, 2017; Kawachi et al., 2008). Social capital is a multidimensional concept, but much of the research relies on a one-dimensional analogy (Echeverría et al., 2008; Romans et al., 2011). There are a few tools in place to measure different forms of social capital. It also lacks continuity between studies (Roberts, 2004). For example, Mitchell and LaGory measure shared social capital through union membership (C. U. Mitchell & LaGory, 2002). In this article, an attempt was made to measure the different forms of social relations that primarily separate social capital within and outside of the family. This can be particularly important in California, where other forms of non-association membership are important. (Jacobs, n.d.) These forms are conceptually different, but in reality, there are a lot of overlaps between the different forms of social capital. In addition, the direction of causation cannot be determined due to the cross-sectional nature of the study. Feeling depressed may be the cause, not the effect of the social capital gap. For example, recent research indicates that the discretionary relationship between social capital is bidirectional. While higher levels of social capital promote better health, social capital also depends on health. However, it is widely recognized and theoretically possible that social capital affects mental health according to studies and previous logic.

The second limitation of the study concerns the selection bias, where individuals who experience symptoms of depression are less likely to fill in the survey. Similarly, individuals who have low engagement with the community and have low social capital are less likely to participate in the study. Future research may address these limitations by oversampling these populations.

There are additional limitations related to the selection of social capital variables. Due to lack of a consistent or widely acceptable definition for social capital in the literature (Fulkerson & Thompson, 2008), it is difficult to evaluate the structural validity of this measure. This is

especially important when considering the role of faith, which considers not only the sphere of creation, but also good deeds and the consequences of social capital. Another criticism of the question of belief is that it is unclear whether they measure beliefs, personalities, past experiences, or perceptions of the prevailing culture (Wikman, 2005). Likewise, a trustworthy attitude does not necessarily correspond to trustworthy behavior.

Unlike some previous studies, this study visualizes social capital as a resource at the individual level. Social capital is found in relationships between people and structures, so a group is needed to form it. However, it is a resource that an individual can attract, so it can also be visualized at an individual level (Blanchflower & Oswald, 2000).

Finally, some theorists are commonly used to ignore the prevalence of social inequality by excluding the role of power dynamics, bypassing the discriminatory approach to social capital within groups, and by excluding those outside the group to criticize the measurement of social capital. The inclusion of tied social capital in this study addresses the first concern. The fact that trust in government and vertical connections in the workplace have shown an inverse relationship with symptoms of depression suggests that it is important to explicitly address the political and economic context when exploring the link between the social environment and mental health. However, the question may not be able to effectively account for how power differences affect social capital. Future research should replicate our findings and try to broaden the structure that brings together social capital to include the different ways in which individuals interact within the level.

To counter the second criticism, there is a growing consensus in public health research that social capital is not inherently beneficial. It can lead to coercion, personality suppression, and the reinforcement of unhealthy codes of behavior, and strong social capital within a group

can actually enforce residential racism or enhance employment opportunities for women and may prevent access to needed resources. Members of other groups may be excluded. It can also lead to stress and stressful obligations to the individual through codes of conduct and reciprocity.

It has also been argued that focusing on social capital may lead to weak public policy by allowing the government to invest less in the economic safety net, encouraging citizens to become more socially cohesive. It is important for future research to respond to these concerns and use social capital theory to address the inequality of power and wealth.

## **CONCLUSION**

Social capital can be a complex boon for people. Different forms of social relationships, both positive and negative, can lead to different health outcomes. Family is an important resource for promoting individual's mental health, while relationships outside the family in various age groups can be mentally traumatic. Socialization among women in the family often involves mutual support but maintaining age group ties outside of the family can be cumbersome due to price gaps, conflict, and discrimination (Brockmann et al., 2009). These results could greatly contribute to have better understanding on social capital and depression from a theoretical point of view. This is because the loss of social capital is increasingly discussed in the literature, but so far, it has rarely been studied with empirical data. Consequently, this study brings together several studies on the relationships between social capital and depression that provide empirical evidence for the aspects of mental health in social capital. Finally, social capital can be seen as a valuable mental health resource, but some forms of it may be mentally harmful.

More research is needed in the future on the positive and negative aspects of social capital, both quantitative and qualitative. In this regard, future research should be focused on

examining how the connections to social capital and depression differ by type and group of social relationships. It is important to distinguish between different forms of social capital because they represent different resources and constraints. Researchers should try to determine which types of social relationships are most valuable and most complex for different groups. As stated by (Ferlander et al., 2016b), “when Social Capital and depression are studied, you need to analyze a range of metrics such as gender and age”. To better understand the complex links between social capital, gender, and depression in California and elsewhere, special attention should be paid to connecting social relationships between women, especially mothers with young children.

In this research, we report the analyses on relationships among social capital, emotional experience, and life satisfaction to illustrate how a sense of social stability can have a catalytic effect on building community stability. The society is a system with inflows and outflows, fluctuations, progress, and regression. This means that the society requires interactions among different elements of the society, including the environmental, economic, and social sectors. This study examines the relationship among the social capital reserves of a community and the emotional experiences and life satisfaction of the population based on social perspectives on the sustainable development of the local community. By improving social capital, emotional experiences, and life satisfaction, it is not only possible to promote the sustainable construction of local communities, but also to steady the relationships between them that build synergies and strengthen the impact of promoting sustainable community development. This piece of information can be valuable in developing community-based interventions to promote mental health. Focusing on the cognitive component such as the sense of belonging could be a key in improving the overall mental health and lower the incidence of depression in the community.

Furthermore, intervention strategies should pay particular attention to attract people with depression with consideration of causing no infliction.

Although this study provides evidence for an inverse relationship between social cognitive capital and symptoms of depression, it does not support the hypothesis that structural social capital is inversely related to symptoms of depression. Future research should formally assess the mechanisms linking social capital with depression and use a longitudinal design to address concerns about reverse causation for tasks. It should also explore the areas of cognitive social capital most relevant to mental health, explore whether social capital should be considered a resource at the group or individual level, and this analysis understands how to better integrate power differences. Therefore, future research is needed.

### **Future Recommendations:**

- Questionnaire development:

Before deciding which questions should be included in the questionnaire, the objective and hypothesis of the survey should be clear to guide the selection of the questions. After generating the hypothesis and the objectives, adopting questions from other studies that have examined the same topic or similar topics would improve the credibility of the questionnaire. That's if the researchers have checked the validity and reliability of their questions. For the future quality of life surveys, I would recommend adopting questions from validated surveys to assess depression and social capital. For example, PHQ-9 is a reliable and valid measure for depression severity and diagnose depression (Kroenke et al., 2001). For social capital, even though there is no gold standard for measuring social capital, I would recommend using the Social Capital Integrated Questionnaire (SC-IQ) introduced by the World Bank as their questions were drawn from prior validated surveys (Grootaert et al., 2004).

The survey is one of the most common methods of data collection. It's easy and convenient, and in some circumstances, it is the best option. But it has lower validity and reliability in comparison to instrumental scales. However, researchers have examined techniques and procedures for developing the questionnaires and distributing them to minimize survey errors and maximize survey quality.

In this chapter of the paper, I will discuss some of these techniques as a recommendation for future implementation of the quality-of-life survey.

- Length and layout

According to the studies, there is a tradeoff between the length of the questionnaire and the response rate. Response rates decrease if the questionnaire is longer than 20 minutes (Sahlqvist et al., 2011).

- Formulation of the questionnaire:

- Questionnaires shouldn't have unfamiliar words or abbreviations. Words and phrases should be clear, self-explanatory, and questions should measure what the researcher intends to measure.
- Questions shouldn't be dependent on responses to previous questions. Creating branching in questioners make them complicated for the participants.
- Avoid double-negative questions.
- Avoid leading questions that imply the desired answer.
- Avoid questions that make warranted assumptions.
- Avoid questions that don't produce variability in responses.
- Avoid questions that have more than one dimension.

- Make sure that responses are mutually exclusive.
- Make sure that response options can accommodate all possible answers.
- Questionnaire administration:

The main concept that should be considered in administering a questionnaire is to include a sample that represents the population of interest. To achieve that, adequate sample size is required, randomization, and an acceptable response rate.

- Random Sampling.

Random sampling is required to minimize selection bias and to ensure an equal chance for participation for all members of the targeted population. This means selecting subjects who receive the questionnaire should be based on a randomization process, such as computer-generated random selection of subjects from all the subjects in the target population.

Additionally, special consideration should be put on the mean of distributing the questionnaire, as certain groups may require different approaches. For example, younger adults are more likely to fill an online questionnaire than older adults (Kelfve et al., 2020). For the future quality of life survey, I would recommend using the sampling design used by the UCLA Center of Health Policy Research in 2019 to conduct the California Health Interview Survey (CHIS) (*California Health Interview Survey*, 2020). A complex survey design with a multi-stage random sampling strategy, which consists of strata, substrata, and an oversample of certain vulnerable populations and generating sampling weights and incorporation of complex survey adjustment in the analysis in order to enhance the generalizability. UCLA used an address-based sample (ABS) from United States Postal Service (USPS) sampling frame. They grouped California counties into strata and divided the two most populated counties into substrata. An adequate number of residential addresses from each stratum were selected through a randomization process.

Invitations for participation were mailed with a \$2.00 incentive, and online, and telephone participation options were offered. Only one adult from each address was asked to participate in the survey. The selection of adults was also based on the randomization process by choosing the adult whose birthday is coming sooner. Predictive modeling was used to determine the likelihood that specific targeted groups of interest for oversampling resided at addresses in the sample. Likewise, The CRC can use the census tract geographical mapping to create strata based on population distribution. Then select an adequate number of addresses from each stratum randomly to survey. Underrepresented variables that have a low probability of being selected, such as certain races, can be oversampled by reviewing different databases and prior surveys. Incorporation of data from the Census Bureau can be helpful in the analysis to give different weights for the responses based on the actual population size.

- Response rate.

The response rate is the percentage of people who filled the questionnaire out of the number of subjects who were selected to fill the questionnaire. An acceptable study response rate is important to ensure that the results are representative of the target population and that your questionnaire is performing as intended. There is no single answer about what the acceptable response rate is, but efforts should be made to achieve a higher response rate to improve the quality of the data collected.

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## **Doctor of Public Health Competencies**

1. Explain qualitative, quantitative, mixed methods and policy analysis research and evaluation methods to address health issues at multiple (individual, group, organization, community and population) levels.
2. Design a qualitative, quantitative, mixed methods, policy analysis or evaluation project to address a public health issue.
3. Propose human, fiscal and other resources to achieve a strategic goal.