

Social capital as a solution to mental health problems

The effect of social capital on 'depression' and 'loneliness' via the effect of social cohesion and civic engagement

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Abstract

This article discusses the effect of social capital on mental health. The expectations were that social capital has a positive effect on a person's mental health and that there does not exist a direct relationship between social capital and mental health. According to previous research, social cohesion and civic engagement are related to social capital as well as mental health. Hence, the effect of social capital on mental health - via the indirect effect of social cohesion and civic engagement - was studied in SPSS using Hayes's Process Macro. Two dimensions of social capital were analyzed separately: social capital in clubs/associations and social capital at work/school. Also, two dimensions of mental health were used in the analysis, loneliness and depression. The results show that the direct effect of social capital on mental health exists between all four dimensions. Additionally, the indirect effect of social cohesion only exists for social capital in clubs/associations on loneliness and depression. The effect of social capital on mental health via the indirect effect of civic engagement does not exist between all four dimensions of social capital and mental health.

Key words: *Mental health – Social capital – Social cohesion – Civic engagement*

Introduction

Mental health problems are a growing concern in Dutch society and specific attention is paid to loneliness and depression (SN, 2013, 2016). According to Statistics Netherlands (2013, 2016), 550,000 people aged 15 years and older experience loneliness and about one million people aged 12 years and older consider themselves depressed¹. This is considered a barrier to a socially cohesive and participation society by municipalities (Municipality of Amsterdam, 2017; Municipality of Rotterdam, 2014). Since the decentralization of care, municipalities are more focused on creating collectivity, participation and self-reliance among citizens (Van Engelen, 2017). A person's own social network becomes increasingly important when being in need of support. However, people who experience mental health problems as loneliness, face difficulties when trying to reach this extent of independence and self-reliance (Municipality of Amsterdam, 2017). These people could become distanced from society, highly increase the costs in care and are limited self-reliant (GGZ, 2013; Van der Zwet & Van de Maat, 2016). They are, for example unable to create their own network for social support which is something municipalities try to encourage based on participation policies (Municipality of Amsterdam, 2017; Municipality of Rotterdam, 2014). Since this group of people is limited

¹According to Cacioppo, Hughes, Waite, Hawkey & Thisted (2006) and Barg et al. (2006), relatively higher levels of loneliness are associated with more depressive symptoms. On the other hand, Routasalo, Savikko, Tilvis, Strandberg & Pitkälä (2006) argue that depression is one of the predictors for loneliness. However, research of Weeks, Michela, Peplau & Bragg (1980) illustrated that depression and loneliness are correlated but that neither were a direct cause of the other. Based on previous research, it can be argued that there exists correlation between depression and loneliness.

participative in society, municipalities find it difficult to reach them and to get insight into the factors that play a role in solving mental health problems as loneliness and depression (Van Engelen, 2017).

People who suffer from mental health problems are less able to create their own social network (Municipality of Amsterdam, 2017). Many studies have argued that social relationships positively effect mental health (Cobb, 1976; Harpham, Grant & Thomas, 2002; Paxton, 1999). Having a network of people to rely on for support could improve a person's mental health (Cobb, 1976). Social networks and relationships relate to the sociological concept 'social capital'. Social capital could be defined as a collection of resources that an individual or organization gains through communal norms and networks (Putnam, 2000). According to Bourdieu (1985), it could be viewed as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (p. 248). This type of social capital corresponds with the network approach, which is mainly focused on the individual level of social capital. This approach relates to social networks, emotional support, opportunities, and mental health (Ferlander, 2007; Lin, Cook & Burt, 2001; Portes, 1998).

Many studies have recognized social cohesion as an important contributor to an improvement of mental health as well (Echeverría, Diez-Roux, Shea, Borrell & Jackson, 2008; Mitchell & La Gory, 2002). Social cohesion could be viewed as a type of social capital. Some scholars refer to social cohesion as 'accumulated' social capital (Oxoby, 2009). It could be viewed as mutual trust and general norms and values that occur on the collective level (Ferlander, 2007; Kawachi, Kennedy, Lochner & Prothrow-Stith, 1997). According to Cramm, Van Dijk and Nieboer (2012), the higher the level of social cohesion in a neighborhood, the more resources community members can access through connections with other people in the neighborhood, which positively influences mental health. However, most researches have used a one-sided definition of social capital by mainly focusing on the collective level (Cattell, 2001; Drukker, Buka, Kaplan, Mckenzie & Van Os, 2005; Verhaeghe & Tampubolon, 2012). By researching the effect of social capital on mental health via the mediating influence of social cohesion, attention is paid to the relationship between the individual and the collective level of social capital. In this way, a more in-depth view of social capital and its relationship with mental health can be provided.

Also, civic engagement could be viewed as a factor that influences mental health (Prestby, Wandersman, Florin, Rich & Chavis, 1990). Civic engagement includes a type of community participation, participation in clubs, organizations, voluntary work, and political participation (Ziersch & Baum, 2004). According to Prestby et al. (1990), interactions with neighbors and friends in the neighborhood are important contributors to community participation and feelings of responsibility towards the community. Local civic action could be considered important in maintaining a socially cohesive society (Ziersch, Baum, MacDougall & Putland, 2005). According to Attree et al. (2011), a majority of people who are actively engaged, experience an increase in self-esteem, social relationships, social interactions, and individual empowerment. By including the indirect effects of

social capital on mental health via social cohesion and civic engagement, this research will contribute to the elaboration of theory concerning mental health problems. In this way, it will contribute to solving a societal issue by providing theoretical insights in sociological constructs that might positively influence mental health. This will enable policy makers at Dutch municipalities to use this information in how to approach and activate people with mental health problems. Thereby, will make it possible to apply these sociological insights into policies for combatting mental health problems related to loneliness and depression.

Theoretical framework

The municipality of Rotterdam in the Netherlands has already developed an approach to decrease mental health problems related to loneliness. In the municipality of Rotterdam, 39% of the adult citizens experienced loneliness in 2009 and this increased to 45% of the adult citizens in 2012 (Municipality of Rotterdam, 2014). These people participate to a lesser extent in society, have a limited social network to rely on and are limited self-reliant. This is in contradiction with the ideas of achieving a participation society (Municipality of Rotterdam, 2014). Therefore, the municipality of Rotterdam developed a program to decrease the problem of loneliness. The main goals were to increase the attention citizens have for each other; to improve the recognition of severe loneliness; and to deploy efficient interventions as the social district team (sociale wijkteam), who can provide support to citizens in finding help (Municipality of Rotterdam, 2014). Also, the municipality of Amsterdam is in the exploration phase of how to solve mental health problems. In 2012, 11% of the adult citizens felt lonely and 33.3% felt lonely sometimes (Municipality of Amsterdam, 2017). However, they have not yet developed a concrete implementation program to decrease the problem of loneliness. This research will contribute to the creation of policy implementations in how to solve mental health problems. At first, a definition of mental health will be provided. Then factors that possibly influence mental health will be discussed.

Mental health: definition

Previous studies have researched mental health and its relation to social capital (Cobb, 1976; Harpham et al., 2002; Paxton, 1999). The World Health Organization (WHO) (2014) defines mental health as “a state of wellbeing in which the individual realizes his or her own abilities, can cope with stress, can work productively, and is able to make a contribution to his or her community. According to Almedom (2005), mental health could be defined as “the state of balance that individuals establish within and between themselves, and their social and physical environment”. However, due to mental health problems as addiction, depression, anxiety, loneliness and mental disorders, a person’s mental wellbeing becomes endangered (Harpham et al., 2002). Based on previous research, this study will lay its main focus on mental health problems related to depression and loneliness (Mitchel & La Gory, 2002; Almedom, 2005).

Social capital and mental health

A person’s mental health can be influenced by a lack of social support and the absence of a social network to rely on (Cobb, 1976; Paxton, 1999; Putnam, 2000). This is related to the ‘amount’ of social capital a person has access to. According to Almedom (2005), it is possible to distinguish two different components of social capital that may affect mental health. Firstly, there is a cognitive component,

which includes trust, a sense of belonging, and shared values. This may increase feelings of security and confidence. There is also a structural component, which refers to access to resources and institutions (Almedom, 2005). The former relates to how people 'feel', and could be referred to as the emotional value of social capital. If people have social relationships that are based on mutual trust and values, these might lead to them receiving emotional support during difficult times in life as the loss of a dear one. This can lead to a reduction of the risk of mental health problems (Harpham et al., 2002). In line with this argumentation, Kawachi and Berkman (2001) developed a stress-buffering model which could be viewed as related to the structural component of social capital. Having access to a social network could lead to valuable information and resources that create opportunities for buffering the effects of life-events. For example, losing a job could cause mental health problems as depression through a reduction in personal control and an increase of financial strain (Price, Choi & Vinokur, 2002). Social capital has the power to prevent or limit these effects of life-events by creating access to resources and institutions. Hereby, social capital has again the power to reduce the risk of mental health problems (Harpham et al., 2002).

However, the amount of social capital could differ for socio-economic status (SES), ethnicity, age and gender, which could lead to a difference in mental health status. According to Winkleby, Jatulis, Frank and Fortmann (1992), a person with a higher SES can better deal with life-events and financial issues than people with a lower SES through more social and economic capital. This would lead to a diminished effect of life-events, less financial strain and through that to less mental health problems (Ajrouch, Blandon & Antonucci, 2005; Campbell, Marsden & Hurlbert, 1986; Winkleby et al., 1992). Since ethnic minorities have a relatively lower educational level and a relatively lower income than native Dutch, they are likely to have less social capital and a relatively worse mental health (Vega & Rumbaut, 1991). Additionally, older people have a poorer health and have relatively less social relationships than younger people (Lang & Carstensen, 1994; Yip et al., 2007). Likewise, older people experience loneliness more often compared to younger people (Green, Richardson, Lago, Schatten-Jones, 2001). Finally, according to Kawachi and Berkman (2001), the effect of social relationships on mental health also differ by gender. Women tend to maintain more emotionally close relationships, need more emotional support during periods of stress, and provide more frequent and intense social support to other people compared to men. As a result, Kawachi and Berkman (2001) argue that women suffer more from stress than men, because of a higher involvement in other people's problems.

Levels and types of social capital

Social capital can be distinguished in two different levels: the individual and the community level. According to Ferlander (2007), the network approach is mainly focused on the individual level. As mentioned before, this approach lays emphasis on the access to social networks, emotional support, opportunities, and mental health (Ferlander, 2007; Lin et al., 2001; Portes, 1998). On the other hand,

some scholars view social capital as something that occurs on the collective level, and consists of generalized social trust (Ferlander, 2007; Kawachi et al., 1997). This approach is often named the social cohesion or communitarian approach, which is about how networks and norms could be identified on the collective level (Ferlander, 2007; Kawachi et al., 1997). Also, a distinction can be made between strong bonding and weak bridging social capital (Putnam, 2000). According to Ferlander (2007), both types of social capital are positively related to mental health. Strong bonding ties (intimate relationships with close friends who have the same background, ethnicity or race) provide solidarity and safety, while weak bridging ties (non-close relationships, maintained occasionally with people from different backgrounds, ethnicities or races) offer access to information and external resources (Mitchell & La Gory, 2002; Putnam, 2000). For this reason, no distinction between these two types of social capital will be made in the operationalization of social capital.

Social cohesion, social capital and mental health

Social capital could also be approached by focusing on the community level. At this level, social capital could be more appropriately referred to as social cohesion. Social cohesion could be identified as a condition of a group, neighborhood or society, which affects the living environment of communities and groups of people (Oxoby, 2009). Cramm, Van Dijk and Nieboer (2012) similarly conceptualized social cohesion as “interdependencies among neighbors”. Scheufele and Shah (2000) have stated that trust is needed to create social cohesion in a community. As earlier described, social capital could be viewed as mutual trust among social networks. So to create relatively high levels of social cohesion in the neighborhood, individuals need to have in-group and out-group social capital (Mitchell & La Gory, 2002). Hereby, it could be expected that higher levels of social capital could lead to higher levels of social cohesion in the neighborhood.

Relatively higher levels of social cohesion in the community may also lead to relatively lower levels of mental health problems. Diffusion of health-related information occurs more rapidly in neighborhoods with a relatively higher degree of social cohesion, which stimulates health-related behavior (Echeverría et al., 2008). In addition, individuals in more cohesive neighborhoods are more likely to generate changes related to health such as the placement of gyms, bicycle lanes and green areas (Echeverría et al., 2008). Green areas stimulate walking and biking, which lead to more local interactions that have an even stronger influence on mental than physical health (Sugiyama, Leslie, Giles-Gorti & Owen, 2008). Also, the study of Aneshensel and Sacco (1996) shows that depression is lowest in neighborhoods with relatively higher levels of social cohesion. Therefore, it could be expected that higher levels of social cohesion in the neighborhood, increase levels of mental health among community members.

Civic engagement, social capital and mental health

Additionally, researchers have identified a relationship between social capital and civic engagement. Daily trustworthy interactions with others, such as visits to friends and neighbors, card games with friends, and social dinners at restaurants, have been recognized as important resources for community improvement and participation (Duke, Skay, Pettingell & Borowsky, 2009; Putnam, 2000; Stolle, Hooghe & Micheletti, 2005). According to Duke et al. (2009), a higher degree of social relations with parents, family, school, the neighborhood, other adults and peers predicted a greater likelihood of community participation and participation in groups such as educational and solidarity groups. People who are more connected and participative in family and community contexts, are less likely to experience emotional distress and to commit suicidal attempts (Duke et al., 2009). According to Prestby et al. (1990), three different types of benefits could be distinguished from civic engagement; material benefits, which can be translated into money, such as wages and information; solidary benefits derived from social interactions such as socializing, group identification, and recognition; and purposive benefits, which relate to the goals of the organization as doing good for the community and fulfilling a sense of responsibility. In the research of Ziersch, Baum, MacDougall and Putland (2005), respondents indicated that local civic action is an important source for creating and maintaining a healthy society. In addition, Attree et al. (2011) researched the experience of community engagement for individuals. The majority of the respondents who were actively engaged in the community reported a positive influence of community engagement on their physical and mental health. They experienced an increase in self-esteem, social relationships, social interactions, and individual empowerment (Attree et al., 2011).

Concluding, it could be expected that social capital effects mental health through the influence of civic engagement and social cohesion. In addition, this study will contribute to solving mental health problems related to depression and loneliness. Therefore, the following research question is formulated: *To what extent is mental health dependent upon a person's social capital and to what extent is the relationship between social capital and mental health mediated by civic engagement and the level of social cohesion in the neighborhood?*

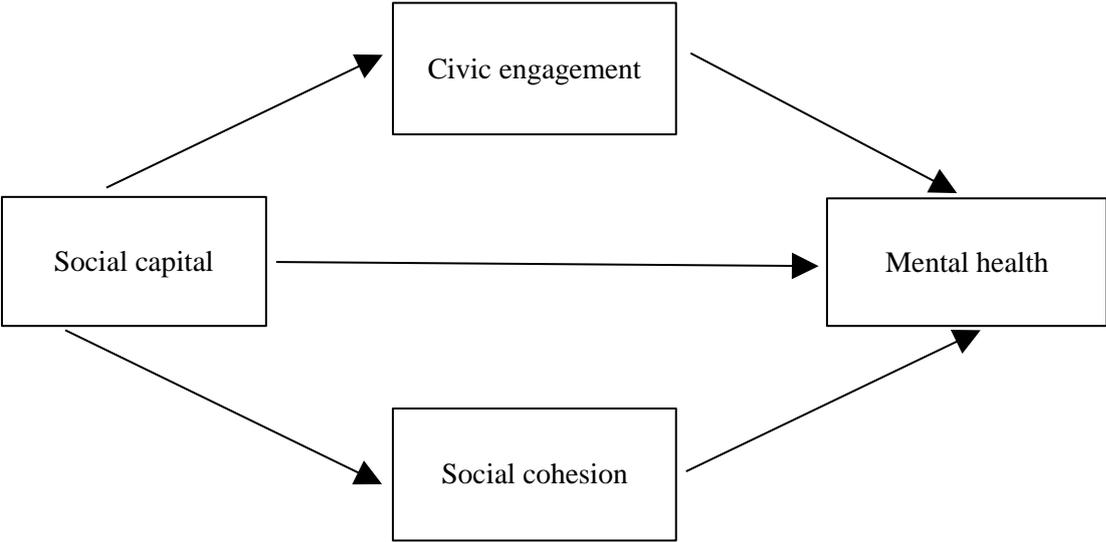


Figure 1. Conceptual model

Data, Hypotheses, Measurements, and Methods

Data

The dataset ‘Netherlands Longitudinal Life course study’, which can be accessed at the website ‘Data archiving and Networked Services’ (DANS), has been used to answer the research question. The survey focuses on three themes that are central in sociological research and theory – social cohesion, norms and values, and inequality, studied from a life-course perspective.

Tolsma, Kraaykamp, De Graaf, Kalmijn and Monden (2014) have conducted a longitudinal panel study containing two waves with 5312 respondents included in Wave 1 and 4784 respondents included in Wave 2. A quasi-random selection of 35 municipalities by region and urbanization took place during the first stage of the first wave. During the second stage, municipalities randomly selected respondents based on age (15-45) and country of origin, and included an oversample of Turkish and Moroccan people to increase the external validity. Thereafter, municipalities were stratified by three regions (West, North/East and South) and four degrees of urbanization (1= Very strong, 2= Strong, 3= Moderate and 4/5= Marginal/Not urbanized).

The data will be analyzed cross-sectionally by the usage of Wave 1. The data from Wave 1 is more appropriate to conduct the analyses on, because there are substantially less missing values on the dependent variable in this Wave than there are missing values on the dependent variable in Wave 2. Despite the missing values, the remaining sample size is still $n = 2407$. Therefore, the research is likely to be generalizable beyond the sample of the study (external validity).

The data of Wave 1 was collected in two stages by conducting face-to-face interviews and a self-completing questionnaire. During the first stage, the interviewer started with the face-to-face interview and left the self-completion questionnaire with the respondent afterwards. From the second half of the first stage, the interviewer started with sending the questionnaire before conducting the face-to-face interview. If the respondent had not completed it before the interview took place, the interviewer waited after the interview until the respondent had finished the questionnaire.

The researchers have asked 12310 people to participate in the research and 52% responded. However, some of the cases in the first stages have no data for the self-completion questionnaire. In the second stage, all cases contain data from this questionnaire. Also, in some cases, the questionnaire was filled out by someone else. These questionnaires were erased from the dataset.

Hypotheses

Research question: To what extent is mental health dependent upon a person's social capital and to what extent is the relationship between social capital and mental health mediated by civic engagement and the level of social cohesion in the neighborhood?

1. Social capital has a positive effect on mental health (H1).
2. a; The positive effect of social capital on mental health is partly mediated by civic engagement (H2a).
b; The positive effect of social capital on mental health is partly mediated by social cohesion (H2b).

Dependent variable

Mental health reflects the extent to which a person has mental health problems. Two dimensions were extracted when conducting a factor analyses and explain 55.6% of the variance. The items, I felt lonely; I thought my life was a failure; I felt anxious; I talked less than normal; people were not nice to me; I cried a lot; I felt sad; I had the feeling people did not like me are selected as socio-psychological problems and identified as subscale 1 (Harpham, Grant & Rodriguez, 2004; Mitchell & La Gory, 2002). Subscale 2 includes the following items: I felt depressed; I did not want to eat; I was annoyed by things that normally do not annoy me; I was not feeling well, even if friends tried to cheer me up; I could not concentrate well; everything I did, costed a lot of effort; I slept restless; I had trouble to get going, which could be identified as psychological mental health problems (Mitchell & La Gory, 2002; Harpham et al., 2004). The subscales will be called 'loneliness' and 'depression', respectively. The items were measured on a 4-point Likert scale, ranging from '1' never or hardly never, '2' sometimes, '3' regularly, and '4' almost always and always. Higher scores on these statements entail a relatively worse mental health. Lastly, the subscales were subjected to a reliability test to research the extent to which the items are internally consistent (subscale 1: $\alpha = .890$ and subscale 2: $\alpha = .868$). This indicates good reliability.

Independent variable

Social capital reflects how often respondents meet their social relationships. The items were reversed coded so that a higher value illustrates a higher level of social capital. Three subscales were identified by a factor analyses. However, one subscale measured social capital on a neighborhood level. This is closely related to the measurement of social cohesion. Therefore, two subscales were selected to conduct the analyses with. Together they explain 68.8% of the variance. The first subscale exists of how often respondents meet their contacts/social network with a Dutch background; Turkish background; Moroccan background; Surinamese/Antillean background; other non-Western background in clubs and/or associations. The second subscale relates to how often respondents meet their contacts/social network with a Dutch background; Turkish background etc. at school and/or work. The items are measured by a scale ranging from 1 to 7. '1' depicts never/not applicable, '2'

depicts one's a year, '3' depicts a couple of times a year, '4' depicts one's a month, '5' depicts a couple of times a month, '6' depicts a couple of times a week, '7' depicts almost every day. The more often respondents meet their social relationships, the higher a value they get. Lastly, the subscales are strongly reliable (1: Cronbach's $\alpha = 0.891$, and 2: Cronbach's $\alpha = 0.852$).

Mediators

Social cohesion reflects the experienced level of social cohesion in the neighborhood. The items were reversed coded so that a higher value illustrates a higher level of social cohesion. Only one scale is identified by a factor analyses and explains 58.2% of the variance. Social cohesion is measured by the items: people in the neighborhood greet each other; people can trust each other in the neighborhood; people in the neighborhood can get along with each other; a lot of people in the neighborhood know each other; people want to help each other; people in the neighborhood would say something if the youth causes trouble. The choice for using these items was partly based on former research conducted by Sampson, Morenoff and Earls (1999). The items are specifically based on the "social cohesion & trust scale" (Sampson et al., 1999). Also, the items were measured on a 4-point Likert scale, ranging from '1' completely incorrect, '2' not really correct, '3' a little bit correct, and '4' completely correct. A higher score indicates a higher feeling of social cohesion in the neighborhood. The scale could also be considered reliable (α is .851).

Civic engagement reflects the extent to which respondents are civically engaged. The items were reversed coded so that a higher value illustrates a higher level of civic engagement. The scale that is identified by a factor analyses explains 34.51% of the variance. Civic engagement is measured by the question 'are you a member of' on the following items: an organization for leisure purposes; a neighborhood organization/tenant interest group; an advocacy group; an organization for nature, environment and/or international solidarity, measured on a scale in which '1' depicts yes and '2' depicts no. The selection of items was partly based on the operationalization of civic engagement in already existing literature (Gil de Zúñiga & Valenzuela, 2011; Gil de Zúñiga, Jung & Valenzuela, 2012). Additionally, the reliability of the scale is relatively low (Cronbach's $\alpha = .343$). However, a relatively low Cronbach's α does not necessarily indicates that the scale is unreliable, because a relatively lower Cronbach's α is ensued when the scale consists of few items (Field, 2013). Lastly, the factor analyses originally extracted two scales. The subscale that was not included in the analyses, existed of the items: an organization from or for ethnic minorities; a political party or political organization. These were identified as relatively irrelevant, because a rather small amount of respondents is a member of those organizations ($n = 205$ and $n = 161$).

Control variables

As mentioned in the theoretical elaboration, the effect of social capital on mental health differs for SES (Ajrouch et al., 2005; Winkleby et al., 1992). Therefore, SES will be included as a control variable and is operationalized as income and educational level. Both variables have been reversed coded so that a higher value illustrates a relatively higher level of income or educational level. Since SES differs relatively substantially among different ethnicities, ethnicity will also be included as a control variable (Vega & Rumbaut, 1991). The effect of social capital on mental health is also expected to differ for younger people compared to older people (Green et al., 2001). Hence, age is also included as a control variable. Lastly, gender is included as a control variable, because women tend to suffer more from mental health problems than men (Kawachi & Berkman, 2001).

Statistical analyses

To test the conceptual model, the extension process macro is used in SPSS (Hayes, 2013). This macro can be used to conduct a multiple regression analyses in which models with one or more mediating and/or moderating variables can be included. The control variables ethnicity, age, SES (income and educational level) and gender are controlled for in all analyses. Also, in the analyses, only cases without missing values on any of the variables included in the analysis are used. Consequently, the amount of cases have reduced from $n = 5312$ to $n = 2407$.

In the first model, the independent variable social capital in clubs/associations, the dependent variable loneliness, and the mediating variables civic engagement and social cohesion were included in process macro. The second model contains the independent variable social capital in clubs/associations, the dependent variable depression, and the mediating variables civic engagement and social cohesion. The third model covered the independent variable social capital in work/school, the dependent variable loneliness, and the mediating variables civic engagement and social cohesion. The fourth model includes the independent variable social capital in work/school, the dependent variable depression, and the mediating variables civic engagement and social cohesion.

In the first analysis, all four direct effects will be discussed. In the second analyses, all eight indirect effects will be discussed.

Regression assumptions

A few important regression assumptions have been checked before conducting the analysis. The assumption of normality of residuals is violated for some variables. However, not much attention is paid to this assumption, because it is less of an importance for a relatively large sample size (Field, 2013). There does seem to be a slight violation with the assumption of homoscedasticity. Since this violation is not substantial, no changes were conducted to resolve it. Meanwhile, the VIF values are between 1 and 10, which means the assumption of multicollinearity is not violated. The Durbin-Watson value has been checked for as well. Since the value is 2.050, it means there is no proof of

positive autocorrelation. In addition, the variable mental health had some outliers. However, none of them were removed because it is plausible that some of the respondents suffer from severe mental health problems while others do not have any mental health problems.

Results

The control variables ethnicity, income and gender have a significant influence on both dimensions of mental health regardless of the type of social capital. Age never has a significant influence on mental health and educational level only has a significant influence on mental health problems related to loneliness regardless of the type of social capital (see appendix table A, B, C and D).

Analysis 1: social capital and mental health

For testing H1 – which states that social capital has a positive effect on mental health – four tables will be analyzed in which data about the direct relationship between social capital and mental health are represented. A significance alpha level of .05 is used in all statistical tests. In Table 1a, the total effect and direct effect of social capital in clubs/associations on loneliness is illustrated. The results indicate that social capital in clubs/associations significantly affects loneliness ($\beta = -.047, p = .023$). However, this effect is marginal insignificant when controlling for civic engagement and social cohesion ($\beta = -.040, p = .055$). In addition, the direct relationship between social capital in clubs/associations and loneliness is in the predicted direction; if the amount of social capital in clubs/associations increases, loneliness significantly decreases. In Table 1b, the effect of social capital in clubs/associations on depression is illustrated. The total effect as well as the direct effect are significant ($\beta = -.055, p = .009$; $\beta = -.050, p = .018$). Also, this direct relationship is in the predicted direction; if social capital in clubs/associations increases, depression significantly decreases. According to Table 1c, social capital at work/school has a significant effect on loneliness ($\beta = -.068, p = .001$). When controlling for civic engagement and social cohesion, the significant effect remains ($\beta = -.065, p = .002$). Furthermore, this direct effect is negative, which means an increase in social capital at school/work leads to a significant decrease in loneliness. Table 1d, indicates a negative significant effect of social capital at work/school on depression ($\beta = -.055, p = .011$). When controlling for civic engagement and social cohesion, the significant effect remains ($\beta = -.053, p = .014$). Since this direct effect is negative, mental health problems related to depression significantly decrease when social capital at work/school increases.

Concluding, all direct effects are significant or marginal insignificant, which means hypothesis 1 can be confirmed (social capital has a positive effect on mental health). The significant effect of both types of social capital on depression is relatively similar. However, there is a relatively small difference among the different dimensions of social capital and loneliness. Social capital at work/school more strongly affects loneliness ($\beta = -.065$) than social capital in clubs/association affects

loneliness ($\beta = -.040$). Thus, meeting people at work/school more strongly affects feelings of loneliness than meeting people in clubs/associations.

Table 1.

1a. Total effect of SC in clubs/associations on loneliness			
Effect	SE	t	p
-.0471	.0207	-2.2729	.0231
<i>Direct effect of SC in clubs/associations on loneliness</i>			
Effect	SE	t	p
-.0399	.0208	-1.9188	.0551
1b. Total effect of SC in clubs/associations on depression			
Effect	SE	t	p
-.0549	.0211	-2.6008	.0094
<i>Direct effect of SC in clubs/associations on depression</i>			
Effect	SE	t	p
-.0501	.0211	-2.3763	.0176
1c. Total effect of SC at work/school on loneliness			
Effect	SE	t	p
-.0676	.0211	-3.2057	.0014
<i>Direct effect of SC at work/school on loneliness</i>			
Effect	SE	t	p
-.0647	.0210	-3.0831	.0021
1d. Total effect of SC at work/school on depression			
Effect	SE	t	p
-.0549	.0215	-2.554	.0107
<i>Direct effect of SC at work/school on depression</i>			
Effect	SE	t	p
-.0526	.0231	-2.468	.0136

Analysis 2: Indirect effects of social cohesion and civic engagement

For testing H2a and H2b – which state that the positive effect of social capital on mental health is partly mediated by civic engagement and social cohesion – the indirect effect of social capital on mental health through civic engagement and social cohesion is displayed in four tables. The indirect effect of social capital in clubs/associations on loneliness via civic engagement is not significant, CI = [-.005, .004] (Table 2a). On the contrary, the indirect effect of social capital in clubs/associations on loneliness through social cohesion falls with 95% bootstrap CI between -.013 and -.002, $\beta = -.006$ (Table 2a). Table 2b illustrates the relationship between social capital in clubs/associations and depression through the effect of civic engagement and social cohesion. As in the former analysis, there seems to be no indirect effect through civic engagement CI = [-.001, .008]. However, the confidence interval of the indirect effect through social cohesion indicates that mediation exists CI = [-.015, -.002], $\beta = -.008$ (Table 2b). According to Table 2c, the indirect effects of social capital at work/school on loneliness through civic engagement and social cohesion are both not significant CI = [-.003, .001; -.009, .002]. Thus, there are no mediation effects in this model. Lastly, Table 2d similarly indicates that the indirect effects of social capital at work/school on depression through civic engagement and social cohesion probably do not exist CI = [.000, .004; -.010, .003].

To conclude with, hypothesis 2a can be rejected. The insignificant indirect effect of civic engagement does not differ for the relationship between different components of social capital and mental health. Hypotheses 2b could be partly confirmed. There exists an indirect effect through social cohesion on the relationship between social capital in clubs/associations and mental health. However, depression decreases more strongly than loneliness ($\beta = -.008$, $\beta = -.006$) (Table 2a and 2b). The indirect effect through social cohesion on the relationship between social capital at work/school and mental health does not exist. So, the confirmation of hypothesis 2b depends on the type of social capital.

Table 2.

<i>2a. Indirect effect of SC in clubs/associations on loneliness</i>				
	Effect	Bootstrap SE	Bootstrap lower bound	Bootstrap higher bound
TOTAL	-.0073	.0036	-.0148	-.0008
Civic engagement	-.0008	.0023	-.0053	.0040
Social cohesion	-.0064	.0028	-.0129	-.0017
<i>2b. Indirect effect of SC in clubs/associations on depression</i>				
	Effect	Bootstrap SE	Bootstrap lower bound	Bootstrap higher bound
TOTAL	-.0047	.0040	-.0129	.0028
Civic engagement	.0029	.0024	-.0013	.0082
Social cohesion	-.0076	.0033	-.0150	-.0019
<i>2c. Indirect effect of SC at work/school on loneliness</i>				
	Effect	Bootstrap SE	Bootstrap lower bound	Bootstrap higher bound
TOTAL	-.0029	.0029	-.0094	.0022
Civic engagement	-.0004	.0009	-.0028	.0010
Social cohesion	-.0026	.0027	-.0087	.0023
<i>2d. Indirect effect of SC at work/school on depression</i>				
	Effect	Bootstrap SE	Bootstrap lower bound	Bootstrap higher bound
TOTAL	-.0022	.0034	-.0093	.0041
Civic engagement	.0008	.0010	-.0004	.0037
Social cohesion	-.0030	.0032	-.0099	.0027

Conclusion & discussion

This research confirmed the relationship between social capital and mental health (H1). People who have more social contacts in clubs, at work and/or school have less mental health problems. This result corresponds with previous studies (Cobb, 1976; Harpham et al., 2002; Kawachi & Berkman, 2001; Putnam, 2000). They stated that having a social network to rely on diminishes mental health problems. Regarding the mediation hypotheses, the indirect effect of civic engagement on the relationship between both types of social capital and both components of mental health does not exist (H2a). This conflicts with former researchers who state that civic engagement relates to both social capital and mental health (Attree et al., 2011; Prestby et al., 1990; Ziersch et al., 2005). The indirect effect through social cohesion on the relationship between social capital in clubs/associations marginally exists (H2b). This result adds to the existing literature by confirming the existence of the mediation effect of social cohesion on the relationship between social capital in clubs/associations and depression and loneliness. However, this indirect effect was not found for social capital at school/work. This conflicts with previous researchers who argue that social cohesion is related to different types of social capital as well as mental health. (Cramm et al., 2012; Echeverría et al., 2008; Oxoby, 2009).

An explanation for the rejection of H2a could be that, civic engagement might not have that much influence on mental health compared to other factors such as ethnicity, gender and SES that were used as control variables in this research and significantly influenced the total effect of social capital on mental health. Concerning H2b, the indirect effect of social cohesion on the relationship between social capital in school/work on mental health was not found. An explanation could be that, it is more likely that clubs and associations are located in the neighborhood or closer to the neighborhood than schools and workplaces. People in the Netherlands have to travel 700 meters on average for a sport club, whereas they travel between the 20 and 41 kilometers for work (Sinkeldam & Groot, 1999; Tiessen-Raaphorst & van den Dool). Also, higher education schools (secondary vocational education, applied university and university), which a relatively larger part of the research population (age 15-45) attends, compared to secondary schools, are more likely to be located outside the neighborhood than sport clubs (Missler & Groeneveld, 2014).

The findings of this research have some implications for policy makers. In light of the decentralization, municipalities try to achieve a participation society in which all citizens are self-reliant (Municipality of Amsterdam, 2017; Municipality of Rotterdam, 2014). However, people who suffer from mental health problems as loneliness and depression are less likely to participate much in society, are not self-reliant, and lead to high costs in care (GGZ, 2013; Municipality of Amsterdam, 2017). Therefore, municipalities want to be able to reach and activate them (Municipality of Amsterdam, 2017; Municipality of Rotterdam, 2014). Based on the results of the research, it is possible to argue that people who suffer from mental health problems as depression and loneliness,

need social relationships and a certain feeling of social cohesion in the neighborhood for a decrease of those problems. Therefore, municipalities should provide support in maintaining and improving someone's social network in the neighborhood (Van der Zwet & Van de Maat, 2016). Hereby, people become self-reliant by creating their own social network on which they can rely for support. This could lead to resources and information concerning for example psychological help or finding a job, which will lead to an improvement of their mental health (Kawachi & Berkman, 2001).

Additionally, this research has some methodological limitations. Firstly, the operationalization of civic engagement was measured by membership of organizations and not by, how often respondents visit those organizations. Hereby, the variable civic engagement provides limited information about the respondents' membership of organizations. Secondly, the operationalization of social capital reflects how often respondents meet their social relationships. A higher value on this variable, indicates a higher amount of social capital. However, both weak bridging and strong bonding social capital are assumed to be positively related to mental health (Ferlander, 2007; Mitchell & La Gory, 2002; Putnam, 2000). Therefore, it is questionable if seeing a person relatively often is worth more social capital than meeting a contact occasionally. Thirdly, this mediation research is conducted cross-sectionally, which means correlation measured at one point might not reflect correlation at other points in time or stable relations between variables. Therefore, it is not possible to make statements about the direction of the measures (Maxwell & Cole, 2007). Furthermore, a Type I error could occur when the sample size is relatively large. The parameters of the cross-sectional analyses could differ from the parameters longitudinally. Assuming that the parameters correspond with each other, could result in detecting an effect and rejecting the null hypothesis while the effect does not occur over time. On the other hand, it is also possible that the expected effects in this research do not occur cross-sectionally, but exist longitudinally (Maxwell & Cole, 2007). Then, a Type II error could occur.

Future research should focus on using more in-depth measurements of civic engagement and social capital. For example, civic engagement can be improved by including how often respondents visit membership organizations. Then the value of a persons' membership is better represented. Also, how often a respondent meets his or her social contacts might not solely reflect a person's social capital. Therefore, a more in-depth operationalization of social might be needed in future research. Additionally, it would be interesting to conduct this research longitudinally to be able to make statements about the direction of the direct relationship between social capital and mental health, and the indirect effects via civic engagement and social cohesion.

To summarize, this research has confirmed the influence of social capital on a person's mental health. Also, this research contributed to the already existing literature by confirming the existence of the indirect effect of social cohesion on the relationship between social capital in clubs and associations, and mental health. Consequently, municipalities should take these results into consideration when creating policies related to combatting mental health problems related to

depression and loneliness. They should offer support in creating individual networks in the neighborhood to contribute in solving mental health problems related to depression and loneliness.

Appendix

Table A. Total effect model of SC in clubs/associations on loneliness

	Coeff	SE	t	p
Constant	.4193	.0947	4.4283	.0000
Social capital in clubs/associations	-.0471	.0207	-2.2729	.0231
Education	-.0391	.0081	-4.8214	.0000
Gender	.1641	.0386	4.2472	.0000
Income	-.0360	-.0080	-4.5024	.0000
Age	.0029	.0027	1.0700	.2847
Ethnicity	-.0264	.0065	-4.0497	.0001

Table B. Total effect model of SC in clubs/associations on depression

	Coeff	SE	t	p
Constant	.3345	.0963	3.4722	.0005
Social capital in clubs/associations	-.0549	.0211	-2.6008	.0094
Education	-.0099	.0083	-1.1990	.2306
Gender	.2430	.0393	6.1806	.0000
Income	-.0452	-.0081	-5.5582	.0000
Age	-.0015	.0028	-.5293	.5966
Ethnicity	-.0141	.0066	-2.1218	.0340

Table C. Total effect model of SC at school/work on loneliness

	Coeff	SE	t	p
Constant	.4418	.0951	4.6475	.0000
Social capital at school/work	-.0676	.0211	-3.2057	.0014
Education	-.0376	.0081	-4.6319	.0000
Gender	.1615	.0384	4.2027	.0000
Income	-.0335	.0080	-4.1915	.0000
Age	.0018	.0028	.6561	.5118
Ethnicity	-.0282	.0066	-4.2978	.0000

Table D. Total effect model of SC at school/work on depression

	Coeff	SE	t	p
Constant	.3416	.0968	3.5278	.0004
Social capital at school/work	-.0549	.0215	-2.5538	.0107
Education	-.0089	.0083	-1.0799	.2803
Gender	.2461	.0391	6.2865	.0000
Income	-.0428	.0081	-5.2600	.0000
Age	-.0023	.0028	-.8206	.4119
Ethnicity	-.0148	.0067	-2.2108	.0271

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