

THE RELATIONSHIP BETWEEN MENTAL HEALTH AND PHYSICAL HEALTH IN A NON-CLINICAL SAMPLE

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ABSTRACT: *The aim of the present study was to explore the relation between mental health and physical health. Mental health was measured with the Mental Health Continuum (MHC) that combine psychological, emotional and social wellbeing. Physical health was measured with the Physical Health Questionnaire (PHQ). The participants (N=222) were recruited via social media and consisted of 130 women and 92 men with a mean age of 40.98. There were small significant correlations between mental health and physical health for the whole sample and medium level correlations for participants rating themselves low on physical health. For participants rating themselves high on physical health, the correlation was reverse. The result raises questions about the relationship between mental health and physical health in non-clinical samples.*

KEYWORDS: Mental health; physical health, non-clinical sample

INTRODUCTION

The relationship between mental health and physical health need to be studied more. Too many are taking for granted that there is a strong relation between mental and physical health in statements such as: “Mental and physical health is fundamentally linked.” “There are multiple associations between mental health and chronic physical conditions that significantly impact people’s quality of life, demands on health care and other publicly funded services, and generate consequences to society.” The World Health Organization (WHO) defines health as “... a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” The WHO even states that “there is no health without mental health.”

The relationships between mental and physical health have been mostly studied in the area of chronic conditions. This line of research have agreed upon three conclusions: 1) Poor mental health is a risk factor for chronic physical conditions (see e.g. Prince, Patel, Saxena, Maj, Maselko, Phillips & Rahman, 2007). 2). People with serious mental health conditions are at high risk of experiencing chronic physical disease (see e.g. Robson & Gray, 2007). 3) People with chronic physical conditions are at risk of developing poor mental health (see e.g. Naylor, Parsonage, McDaid, Knapp, Fossey & Galea, 2012).

But what about the association between mental and physical health in non-clinical populations. The social determinants of health probably impact both physical and psychological conditions for all kind of people. However, exactly how mental health and physical health are related in normal populations are understudied.

Understanding the links between mind and body is often the first step in developing strategies to break barriers toward enhanced health. Health enhancing strategies should both support people that already have taken the first step toward enhanced health and help people that have not made any effort to improve neither physical health nor mental health.

The present study put forward the assumption that the relationship between mental and physical health are more complicated and less obvious for people scoring themselves high on physical health. There is sampling bias in this line of research with an emphasis on clinical samples. An increased understanding of the relationships between mental health and physical health will improve the likelihood of succeeding with interventions for increased health.

Mental health

The modern view of mental health is that it is more than the absence of mental illness. There is today an increased interest in measuring positive mental health instead of for example depression. A person that is regularly cheerful, in good spirits, happy, calm and peaceful, satisfied, and full of life is mentally healthy. However, positive affect or feelings of happiness is only one little piece of the puzzle. The functional aspect of wellbeing also needs to be taken into account.

To be able to work facing new challenging experiences and live with a sense of personal development one need to have positive attitudes toward oneself (self-acceptance) and positive attitudes toward others (social acceptance). Having positive attitudes toward society and the feeling of being socially functional is part social well-being. To have positive relations with others and being capable of empathy and intimacy is essential for the striving to become a better person and to realize one's potential. Self-acceptance and purpose in life in turn require a sufficient degree of autonomy. Thus, psychological well-being (Ryff 1995; Ryff and Keyes 1995) is about the optimal functioning in terms of individual fulfillment.

Keyes (2005) has argued that it is important to also study the optimal social functioning of individuals in terms of their social engagement to prosper socially. Social well-being consists of five dimensions (Westerhof & Keyes, 2010). Social coherence regards being able to make meaning of what is happening in society. Social acceptance is about having positive attitudes toward others. Social actualization is about peoples believes that social groups, and society have potential and can grow positively (Keyes, 2005). Social contribution is about the feeling that one's life is useful to society and the output of his or her own activities are valued by or valuable to others. Social well-being is to a large degree about having goals and beliefs that affirm a sense of direction in life. This feeling that life has a purpose and meaning is associated with being interested in society or social life and feels society are understandable. To see society as logical, predictable, and meaningful has been labeled social coherence (Keyes, 2005). Finally, social integration is about having a sense of belonging to a community.

The mental health continuum (Keyes, 2005) combine three types of wellbeing. Hedonic or emotional well-being involves feelings of happiness and satisfaction. Psychological and social well-being involves the functional aspects. Using wellbeing as a measure of mental health has the benefit of addressing the positive aspects of feelings and views about oneself. It is especially suitable for non-clinical samples since questions about diagnosis like depression or anxiety might feel awkward.

Physical health

Definitions of physical health can consider everything ranging from the absence of disease to fitness level. Traditionally, people were considered physically healthy if he or she was not troubled with a serious illness. Although, this is still true in medicine of today to things have started to change. Being physically healthy is more than being without a sickness.

Another definition problem has to do with the fact that several key areas that address physical health has more to do with the antecedents of physical health than the actual experience of it. For example physical activity including strength, flexibility, and endurance. Or nutrition and diet including nutrient intake, fluid intake, and healthy digestion. For example, physical activity is a well-known key component of physical health. We know that a mix of both leisurely physical activity and structured exercise has positive effects on health (see e.g. Rhodes & Bruijn, 2013). To be physically active is however an antecedent to measured or perceived health. Likewise, healthy food choice is a precursor to health and well-being (e.g. Steptoe, Pollard & Wardle, 1995); Eisele, 2016).

The assessment of physical health can be done in a variety of ways. General assessments includes weight, body mass index (BMI), and reflex tests. Disease risk factor assessments includes blood pressure, cholesterol, and blood glucose tests. Fitness assessments includes body composition (body fat percentage), flexibility, muscular strength, and endurance tests. The detection of disease is important for medicine but does not sufficiently address the matter whether people feel healthy or not. Therefore there is a need for self-assessments that address perceivable aspects of health. Physical health have not been studied much with self-report measurements but Schat, Kelloway and Desmarais (2005) developed the Physical Health Questionnaire (PHQ). Perceivable factors addressed by PHQ is sleep, headaches, gastrointestinal problems and prolonged infections.

Demographics

There are many well know demographics within public health research that affect health. Being out of job is perhaps the most prevalent (Breslin & Mustard, 2003). Other demographics include native versus immigrants, socioeconomic status, partnership and children.

Nesterko, Braehler, Grande and Glaesmer (2013) found that Native-born Germans report a higher amount of physical health compared to the immigrants. Since immigrants are a heterogeneous group the authors concluded that one should focus on immigration-related factors, not simply comparing immigrants and the native-born. Williams, Priest and Anderson (2016) found that ethnicity and socioeconomic status are linked to each other, but ethnicity matters for health even after socioeconomic status is considered. In a meta-analysis conducted by Robles, Slatcher, Trombello and McGinn (2014) it was concluded that greater marital quality was related to better health and lower cardiovascular reactivity.

The present study had the aim to examine associations between mental health and physical health. In doing so, self-report measures were used to assess peoples own feelings and perceptions of both mental health and physical health. In the study, several relevant demographics that could affect the relationship between mental and physical health were explored. The hypotheses were that there should be correlations between mental health and

physical health, decreasing with lesser self-reported health problems and increasing with higher self-reported ill-health.

METHOD

Participants

The sample (N=222) consisted of 130 women with a mean age of 41.23 and 92 men with a mean age of 42.87. There were 62 immigrants and 160 swedes, 72 was out of job and 150 had some kind of employment. Other demographics included education level (low=8, medium=137, high=77) and economic status (low= 148, medium=74).

Measures

Physical health

A Swedish version of the Physical Health Questionnaire (PHQ) developed by Schat, Kelloway and Desmarais (2005) was used to measure self-reported physical health. The PHQ consist of 14 items on a 7 point Likert scale. It measure four perceivable health factors, the frequency of sleep disturbances, headaches, respiratory infections, and gastrointestinal problems. Example item: How often has your sleep been peaceful and undisturbed? How often did you have to watch that you ate carefully to avoid stomach upsets?

The original questionnaire have Cronbach's alphas of .83, .88, .80, and .66, for gastrointestinal problems, headaches, sleep disturbance, and respiratory infections, respectively. The Swedish version have corresponding Cronbach's alpha of .93, .87, 89, and .94.

Mental health

The Mental Health Continuum—Short Form (MHC-SF; see e.g. Westerhof & Keyes, 2010) consists of 14 items subdivided into three factors; emotional wellbeing (3 items), psychological wellbeing (6 items), and social well-being (5 items).

Example items for the three types of well-being are “In the past month, how often did you feel: ...that you rejoiced? ...that you could handle your common responsibilities? ...that you were a part of a community?”.

The Cronbach alphas for the three scales is .83 for emotional well-being, .83 for psychological well-being, and .74 for social well-being. The reliability of the total scale is .89 (Keyes 2005). The Swedish version have corresponding Cronbach alpha values of .86, .87 and .85.

Procedure

Participants were given information about the study at different webpages, including a blog, a Facebook page and a homepage about a national wellbeing project. Thus, the sample have a bias toward people interested in well-being.

The information provided included informed consent and all participants that volunteered to participate in the study were given a web link with the survey.

The participants filled out the web survey at their own pace from any computer. Anonymity was guaranteed with a procedure of the opportunity of using a made up name that they were asked to remember. The participants could also use their own name if they wanted to do so.

Participants with chronic physical conditions were identified and analyzed separately. No participant reported having any mental illnesses.

The result of the study was presented at the same social media places as the participants first got the information about the study.

RESULT

Descriptive statistics for the whole sample and three subsamples based on degree of self-reported physical health are shown in four tables.

There is a small significant correlation between overall physical health and mental health. That is, the lower self-reported physical health problems the higher self-reported mental health. Emotional wellbeing correlate less with physical health than both psychological and social wellbeing. All four physical health factors correlate with each other (Table 1). When controlling for job situation the correlation decreases slightly, $r=-.28$, $p<.001$.

Table 1 Means, standard deviations, correlations and Cronbach Alpha values.

	Means SD	1	2	3	4	5	6	7	8	9	CA
1. Mental health 14 items	2.48 .64	-									.83
2. Psychological Well-being 6 items	2.43 .63	.92 <.001	-								.87
3. Emotional well- being 3 items	2.60 .87	.81 <.001	.63 <.001	-							.86
4. Social well-being 5 items	2.46 .72	.92 <.001	.79 <.001	.63 <.001	-						.85
5. Physical health 14 items	2.96 1.16	-.35 <.001	-.42 <.001	-.09 N.S.	-.36 <.001	-					.87
6. Sleep disorders 4 items	2.76 1.24	-.24 <.001	-.37 <.001	.04 N.S.	-.26 <.001	.92 <.001	-				.89
7. Headaches 3 items	3.00 1.30	-.40 <.001	-.43 <.001	-.19 .005	-.41 <.001	.95 <.001	.86 <.001	-			.87
8. Gastrointestinal problems 4 items	3.13 1.19	-.34 <.001	-.40 <.001	-.08 N.S.	-.36 <.001	.96 <.001	.84 <.001	.89 <.001	-		.93
9. Prolonged infections 3 items	2.96 1.31	-.33 <.001	-.36 <.001	-.14 .04	-.33 <.001	.88 <.001	.68 <.001	.79 <.001	.81 <.001	-	.94

Note: Whole sample N=222.

Participants categorized as low medium and high on physical health were analyzed separately. There is a positive correlation with mental health for participants reporting a low degree of health problems (high score on PHQ). The sub factors sleep disorder and prolonged infections is an exception (Table 2).

Table 2 Means, standard deviations, correlations and Cronbach Alpha values.

	Means SD	1	2	3	4	5	6	7	8	9
1. Mental health 14 items	2.89 .72	-								.83
2. Psychological well-being 6 items	2.82 .74	.96 <.001	-							.86
3. Emotional well- being 3 items	2.77 .79	.93 <.001	.86 <.001	-						.84
4. Social well- being 5 items	3.03 .76	.94 <.001	.82 <.001	.83 <.001	-					.84
5. Physical health 14 items	1.38 .25	.70 <.001	.71 <.001	.62 <.001	.62 <.001	-				.85
6. Sleep disorders 4 items	2.89 .71	.50 .001	.52 <.001	.55 <.001	.37 .02	.63 <.001	-			.87
7. Headaches 3 items	1.26 .82	.41 .008	.41 .008	.28 N.S.	.42 .006	.81 <.001	.24 N.S.	-		.87
8. Gastrointestinal problems 4 items	1.55 .46	.68 <.001	.67 <.001	.58 <.001	.66 <.001	.86 <.001	.23 N.S.	.75 <.001	-	.89
9. Prolonged infections 3 items	1.08 .14	.03 N.S.	.12 N.S.	-.08 N.S.	-.01 N.S.	.38 .02	-.12 N.S.	.19 .001	.32 .02	- .90

Note: Self-reported high level psychical health (low degree off ill-health problems), n=41

For the medium category there were no significant correlation between overall mental health and physical health. Physical health correlate with psychological and social wellbeing but not with emotional wellbeing (Table 3).

Table 3 Means, standard deviations, correlations and Cronbach Alpha values.

	Means SD	1	2	3	4	5	6	7	8	9
1. Mental health 14 items	2.50 .63	-								.82
2. Psychological Well-being 6 items	2.60 .57	.90 <.001	-							.85
3. Emotional well- being 3 items	2.63 .76	.93 <.001	.70 <.001	-						.85
4. Social well- being 5 items	2.37 .74	.96 <.001	.77 <.001	.92 <.001	-					.85
5. Physical health 14 items	2.44 .31	-.02 N.S.	.27 .008	-.11 N.S.	-.25 .02	-				.85
6. Sleep disorders 4 items	2.06 .52	.60 <.001	.69 <.001	.54 <.001	.45 <.001	.67 <.001	-			.86
7. Headaches 3 items	2.57 .43	.03 N.S.	.30 <.001	-.05 N.S.	-.16 N.S.	.92 <.001	.54 <.001	-		.84
8. Gastrointestinal problems 4 items	2.65 .47	-.45 <.001	-.26 .02	-.47 <.001	-.53 <.001	.64 <.001	.18 N.S.	.54 <.001	-	.90
9. Prolonged infections 3 items	2.56 .62	-.28 .009	-.04 N.S.	-.33 .002	-.42 <.001	.26 .02	-.27 .02	.04 N.S.	-.13 N.S.	- .90

Note: Self-reported medium level of physical health, n=85.

For participants reporting a high degree of health problems there was a significant negative correlation between health problems and mental health. That, is for this category the result was the same as for the whole sample. Psychological well-being and social well-being (but not emotional well-being) correlate with physical health (Table 4).

Table 4 Means, standard deviations, correlations and Cronbach Alpha values.

	Means	1	2	3	4	5	6	7	8	9
1. Mental health 14 items	2.26 .52	-								.83
2. Psychological Well-being 6 items	2.13 .47	.94 <.001	-							.87
3. Emotional well- being 3 items	2.50 .98	.75 <.001	.54 <.001	-						.85
4. Social well- being 5 items	2.29 .56	.86 <.001	.84 <.001	.35 <.001	-					.85
5. Physical health 14 items	4.09 .66	-.31 .002	-.39 <.001	.03 N.S.	-.44 <.001	-				.87
6. Sleep disorders 4 items	3.92 .91	-.39 <.001	-.53 <.001	.10 N.S.	-.58 <.001	.80 <.001	-			.89
7. Headaches 3 items	4.09 1.03	-.47 <.001	-.45 <.001	-.24 .02	-.52 <.001	.86 <.001	.63 <.001	-		.85
8. Gastrointestinal problems 4 items	4.24 .68	-.10 N.S.	-.18 N.S.	.18 N.S.	-.27 .008	.86 <.001	.60 <.001	.64 <.001	-	.92
9. Prolonged infections 3 items	4.11 .81	.13 N.S.	.10 N.S.	.06 N.S.	.18 N.S.	.52 <.001	.06 N.S.	.33 .001	.41 <.001	- .92

Note: Self-reported low level of physical health (high degree of ill-health problems), n=96.

Curve estimate regression analysis of the relation between overall mental health and overall physical health confirm the correlational patterns (Figure 1). The standardized Beta for participants with self-reported low degree off physical health was $-.61$, for medium level $-.03$, and for participants with self-reported high degree of physical ill health, $.70$. For the whole sample the regression coefficient was $-.35$.

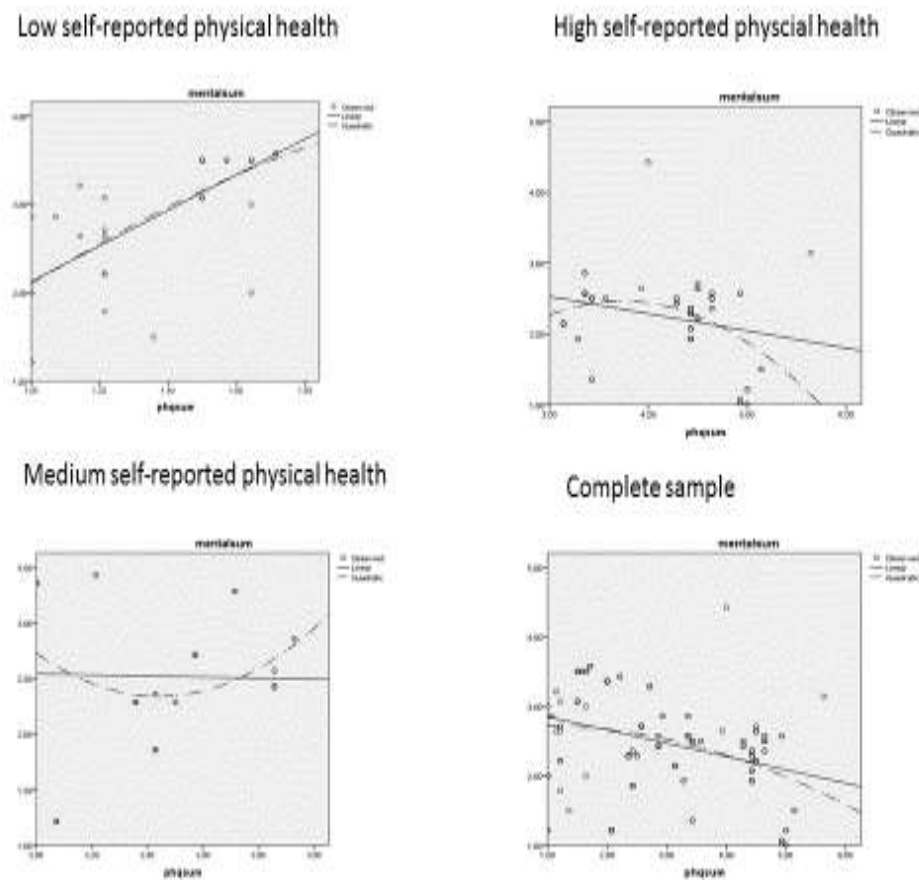


Figure 1. Curve estimate regression for the whole sample (N=222) and the three sub categories of self-reported physical health.

There were no difference between whole sample and analyses with participants with chronic physical conditions excluded.

DISCUSSION

In the present study the associations between mental health and physical health were explored in a non-clinical sample. There was a negative correlation between mental health and physical ill-health. The correlational patterns were different for the three subsamples. There were small significant correlations between mental health and physical health for the whole sample and medium level correlations for participants rating themselves low on physical health. For participants rating themselves high on physical health, the correlation was reverse. The result raises questions about the relationship between mental health and physical health.

The hypotheses was that there should be a moderate correlation between mental health and physical health. Moderate due to the fact that there might be participants with minor health deficits that is more concern about their well-being. Likewise there might be participants scoring below mean on the three well-being measures that might use time and effort to work on their physical health. However, a correlation should exist since a majority of the participants

that score high on mental health will also score high on physical health. The hypotheses further stated that there is a lower cut off point where the correlation between mental health and physical health is much higher. That is, people with more severe health conditions will score low on mental health.

People with low self-reported mental health also report low physical health. This is in line with studies on clinical samples (see e.g. Naylor et.al. 2012). However, at high level of self-reported physical health this correlation disappear. There are different possible reasons for the lack of correlation between mental health and physical health within this subsample. People with minor health issues might have taken steps to remedy this and so reporting moderately low mental health and moderately high physical health and vice versa. For example, people that view their wellbeing as less than optimal might be concern with their physical health. A majority of participants that reported high mental health also reported high physical health. But the amount of participants with low mental health and high physical health and vice versa, is enough to diminish this correlation.

While participants reporting very low mental health also report very low physical health. That is, there is a cutoff point where the relationship between mental health and physical health are different. On the lower end of the scales the result is the same as main research on the topic and. To conclude, regarding the correlation there is a difference between clinical sample and normal sample.

Within this line of research more studies on non-clinical samples are called for. There are two main reasons for conducting research on non-clinical samples regarding the relation between mental and physical health. By only looking at clinical samples we might miss the big picture. To better understand how interventions for enhanced health best are conducted for large populations. Studying the relations between mental health and physical health on non-clinical samples increase our understanding of many health related behaviors, for example compensation processes. Such compensation processes works in many different ways. To exemplify, feeling bad mentally can trigger both unhealthy behavior like eating junk food and healthy behavior like training at the gym. Much more research are needed to test such complicated phenomena's.

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Acknowledgment

I would like to thank professor Schat for great insight regarding physical health and his constructive review of the early draft of this paper.