

Refraining from seeking mental healthcare and poorer mental well-being: A longitudinal population-based study on men in Sweden

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Abstract

Background: Depression and anxiety disorder contribute to a significant part of the disease burden among men, yet many men refrain from seeking care or receive insufficient care when they do seek it. This is plausibly detrimental to men's mental well-being, but there is a lack of population-based research to confirm this. This study investigated 1) if men who had refrained from seeking mental healthcare had poorer mental well-being than those who sought care, 2) if those who sought care but perceived it as insufficient had poorer mental well-being than those who perceived care as sufficient, and 3) if these differences persisted after one year.

Methods: This longitudinal study used questionnaire data from a population-based sample of 1240 men, aged 19-64 years, in Sweden. Having refrained from seeking mental healthcare, or perceiving the care as insufficient, at *any time in life*, was assessed in a questionnaire, 2008. Current mental well-being was assessed in 2008 and 2009 using mean scores on the WHO (Ten) Well-being Index, with a lower score indicating poorer mental well-being. Group differences were calculated using t-tests and multivariable linear regression analysis.

Results: Of the men who had perceived a need for mental healthcare, 37% refrained from seeking such care. They had lower mental well-being scores in 2008, compared to those who sought care. Of those seeking care, 29 % perceived it as insufficient. They had lower mental well-being scores in 2008, compared to those who perceived the care as sufficient, but this was not statistically significant when controlling for potential confounders. There were no differences in mental well-being scores based on care-seeking or perceived care-sufficiency in 2009.

Conclusions: This population-based study provides some support for the hypothesis that refraining from seeking mental healthcare, or perceiving the care as insufficient, is detrimental to men's mental well-being. However, the lack of differences over time contradicts this hypothesis.

The results highlight the need for larger longitudinal studies, measuring care-seeking within a more specified time frame, and using longer follow-up periods. This should be combined with efforts to increase men's mental healthcare-seeking and to provide mental healthcare that is perceived as sufficient.

Introduction

Common mental disorders such as depression and anxiety disorders have a high prevalence (1), and account for 4% of the disease burden among men aged 15-49 years in Western Europe, according to the Global Burden of Disease Study (2). Especially if untreated, these disorders are often longstanding, recurrent, and have a detrimental effect on individual function and productivity (3-5). There is consistent evidence for the benefit of receiving treatment, even for mild to moderate depression and anxiety disorders (4, 5). Remission or reduction of symptoms can be attained by psychotherapy, pharmacotherapy, or a combination of both (4, 5). Yet a large proportion of men refrain from seeking mental healthcare. For example, a population-based study from Sweden showed that 57% of the men with current depression and/or anxiety disorder had not sought care during the past year (6).

Refraining from seeking mental healthcare has been suggested to be detrimental for men's mental well-being on a population level (7-11). Yet empirical data is lacking. For example, men's reluctance to seek care has been hypothesised to be one of the explanations for men's higher risk for premature death and suicide (7). This is partly due to an assumed negative effect of later diagnosis and treatment (8, 9, 12) and a proposed connection to other risk behaviours e.g. higher alcohol consumption (7), reckless driving (10), and workaholism (9). These behaviours have partly been explained by masculinity norms encouraging men to deal with mental health problems in ways that are harmful to their health, but may benefit men's position in social hierarchies (7). Some empirical research indicates detrimental outcomes of refraining from seeking mental healthcare among men, but these do not focus specifically on mental healthcare-seeking; rather, they have a broader perspective on masculinity norms and suicide (13, 14). For example, a population-based study identified self-reliance, defined as being reluctant to seek help, as a risk factor for suicidal thinking among men (13). A qualitative study on men who had attempted suicide found that

due to masculinity norms that encouraged non-disclosure of distress these men had opted for suicide instead of seeking care (14). Although most men who refrain from seeking mental healthcare do not deteriorate into suicidality due to having milder conditions (15, 16) they may still benefit from treatment (4, 5).

Based on the suggested risks for poorer health due to lack or delay of treatment, and risk behaviours among men who refrain from seeking mental healthcare (7-12), one might assume that these men will have poorer subsequent mental well-being than those who seek care, and that these differences would persist over time. However, there is a lack of evidence from population-based longitudinal studies to confirm this hypothesis.

Furthermore, a limitation of previous research is that most studies have focused on men's reluctance to seek mental healthcare (17), overlooking the fact that many men do seek it. However, many care-seeking men receive insufficient care. Insufficient care can be defined using both patient perceptions, e.g. perceived unmet need for care (18, 19), and using clinical measures, e.g. inadequate standard of care in regard to evidence-based guidelines (20). A multi-country study from high-income countries shows that among men and women who sought mental healthcare with symptoms corresponding to major depression, only half received treatment meeting minimally adequate standards (20). Qualitative studies have also shown that many care-seeking men are sceptical about treatment, minimise their symptoms, and are unwilling to disclose distress, behaviours shown to be related to masculinity norms (14, 17, 21). Clinical and epidemiological studies have found that men have a higher likelihood for under-diagnosis of depression (22, 23), under-treatment with antidepressants, (24), insufficient follow-up during sick leave for mental diagnoses (25), and of perceiving the mental healthcare as insufficient, than do women (26). Possibly, this indicates poorer standard and quality of mental healthcare for men than women. Indicators of poor quality of care, such as poor adherence to treatment, and adverse events in care situations, are consistently associated with perceived sufficiency of care (27). Based on the association between quality of care and perceived sufficiency of care (27), and the importance of receiving treatment (4, 5), one might assume that men who sought mental healthcare but perceived it as insufficient, would have poorer subsequent mental well-being than those who perceived the care as sufficient, and that these differences would persist over time. To our knowledge, no present study investigates this hypothesis using longitudinal data from a population-based sample of men.

Considering that men's unmet need for mental healthcare occurs on multiple steps on the pathway to mental healthcare (26), there is a need for epidemiological studies considering how both *refraining from seeking care*, and *perceiving the care as insufficient when seeking it*, are related to subsequent poorer mental well-being. There is a particular need for longitudinal studies. Firstly, a persistent difference in mental well-being based on previous unmet need implies a more stable detrimental effect than a difference observed at one-time point only. Secondly, poorer mental well-being based on unmet need may persist over time due to the longstanding and recurrent nature of untreated depression and anxiety disorders (3, 4, 28). Thirdly, men who have postponed care-seeking, or received insufficient care when seeking it, may have poorer treatment outcomes (8, 9, 12, 29). Fourthly, they may engage in risk-behaviours that put an additional burden on their mental well-being (7, 9, 10).

Besides, research from Sweden is especially valuable considering that previous research on men's mental healthcare-seeking is primarily from the US, Australia, and the UK, with few studies from the Nordic countries (30).

In a population-based sample of men in Sweden, this longitudinal study investigated 1) if men who had *refrained from seeking mental healthcare* had poorer mental well-being than those who sought care, 2) if those who sought care but *perceived it as insufficient* had poorer mental well-being than those who perceived care as sufficient, and 3) if these differences persisted after one year. Mental well-being was measured at two time points, one year apart, time 1 (T1) and time 2 (T2). The study design and hypotheses are illustrated in Figure 1. The following hypotheses were tested:

- A. Men who have refrained from seeking mental healthcare will have poorer mental well-being at both T1 (hypothesis A1) and T2 (hypothesis A2), compared to men who sought care when perceiving a need.
- B. Men who have sought mental healthcare but perceived the care as insufficient will have poorer mental well-being at both T1 (hypothesis B1) and T2 (hypothesis B2), compared to those who perceived it as sufficient.

Methods

Study design and participants

This longitudinal study was based on secondary analysis of data collected for the purpose of investigating mental health and sickness-absence, the Health Assets Project (HAP) (31, 32). From HAP, we used two questionnaires and sociodemographic registry data from a general population-based sample of men in Region Västra Götaland, Sweden. The region has 1.7 million urban and rural inhabitants, constituting 17% of Sweden's population. A random general population-based sample of men and women, aged 19-64 years, was extracted by Statistics Sweden and invited to participate ($n = 7984$, Figure 2). The invited men and women received the first postal questionnaire, referred to as T1, between 15 April to 30 June 2008 (32). The T1 questionnaire comprised questions on mental healthcare-seeking at any time in life, mental and physical persistent illness, sociodemographic factors, and an index on mental well-being. A previous analysis of non-participation showed that those born outside the Nordic countries, those with low income, young persons, men, and those who were single were less likely to participate at T1 (33). Previously, several studies have been published based on the T1 questionnaire and the population-based sample, e.g., a recently published study showing gender and education-based differences in unmet need for mental healthcare (26). The current study included men only.

Of the 4086 persons registered as men by Statistics Sweden, 44% ($n=1793$) participated at T1, and consequently were included in this study (Figure 2). This group received a follow-up questionnaire between 21 September and 12 December 2009, referred to as T2. Both questionnaires were followed by two reminders. The T2 questionnaire comprised an index on mental well-being. Of the 1793 men who participated at T1, 23% were lost to follow-up at T2. In total, 34% of the invited men participated at both T1 and T2 ($n=1283$, Figure 2). Of those, 11 participants were excluded due to missing data on mental healthcare-seeking. Also, 131 participants were excluded due to missing data on the item on mental well-being at T1 and/or T2 ($n=74$ had missing data at T1, $n=66$ at T2, and $n=9$ at both T1 and T2). Consequently, the final study sample comprised 1240 men, i.e. participants with data from both T1 and T2 (Figure 2). The time elapsed between T1 and T2 ranged from 14.5 to 20 months.

Exposure variables

Perceived need for mental healthcare and seeking mental healthcare at *any time in life* was assessed using the T1 questionnaire, based on the question "Have you at any time felt so mentally unwell that you felt a need to seek care?" The study sample was divided into three categories based on the response alternatives ("yes", "yes, but did not seek", and "no"): 1) *care-seekers*, who had perceived a need for mental healthcare and sought care, 2) *non-care-seekers*, who had perceived a need for mental healthcare but refrained from seeking it, and 3) *non-need-perceivers*, who had not perceived a need for mental healthcare. In addition, care-seekers were divided into two categories based on the follow-up question "Do you think you received the care that you needed?" with the response alternatives "yes" (i.e. *sufficient care-perceivers*) and "no" (i.e. *insufficient care-perceivers*, Figure 1). Data on reasons for refraining from seeking mental healthcare and where care-seekers had sought care is presented elsewhere (26).

Potential confounders

The association between poorer mental well-being and refraining from seeking mental healthcare or perceiving the care as insufficient may be confounded by sociodemographic and health variables. For example, lower education is associated with both refraining from seeking mental healthcare (26), and poorer mental well-being (34). Poor health, e.g. having a persistent mental illness is associated with seeking mental healthcare (35), perceiving the care as insufficient (36, 37), and poorer mental well-being (38-40). Based on this, potential confounders chosen were education, country of birth, age, persistent physical illness, and persistent mental illness. These variables were measured at T1. Age (categorised into 19-30, 31-50, and 51-64 years) and country of birth (dichotomised into Nordic versus non-Nordic country based on nine categories: Sweden, other Nordic countries, other European countries, Africa, Asia, North America, South America, Oceania, and others) were based on register data from Statistics Sweden. The level of completed education was based on questionnaire data (categorised into primary education or less, secondary education, and university education, based on six response alternatives). Persistent

illness was measured using questionnaire data on whether the respondent had any persistent disease, illness, or disability, followed by a checklist of categories (e.g., cardiovascular, neurological, and mental illnesses). Respondents choosing “mental illness” were considered to have persistent mental illness. Those choosing one or more physical illnesses categories were considered to have persistent physical illness.

Outcomes

Mental well-being was assessed both at T1 and T2 using the WHO (Ten) Well-being Index (WHO-10) (41). The index comprises ten items covering depression, anxiety, energy, and positive well-being in the previous week. Each item has four response alternatives ranging from “never” (i.e. 0) to “all the time”, (i.e. 3), giving a total score of 0-30. A lower score indicates lower mental well-being and has been found to correspond to depression (38-40), and suicidality (40). For example, cut-offs ≤ 8 , and ≤ 12 have been found to correspond to depression according to the Schedules for Clinical Assessment in Neuropsychiatry and Major Depression Inventory, respectively (38, 39). WHO-10 is suitable both as a screening tool for depression, as an outcome measure of treatment effects, and for comparison of mental well-being between population groups and over time (40). The Swedish version of the WHO-10, used here, has shown good reliability and validity (42).

Statistical analyses

Descriptive statistics of health and sociodemographic characteristics at T1 were obtained by calculating frequencies (n), proportions (%), and proportional differences using Pearson's Chi² test. To investigate potential differences in mental well-being scores between 1) non-care-seekers versus care-seekers, and 2) insufficient-care-perceivers versus sufficient care-perceivers, differences in means were calculated using independent sample t-tests, and multivariable linear regression analyses. The analyses were conducted at T1 and T2, separately. To explore if these potential differences were consistent across subgroups, t-tests were stratified by potential confounders. Multivariable linear regression analysis was used to investigate differences in mental well-being scores between the groups while controlling for potential confounders. All relevant assumptions for multivariable linear regression analyses were met (43). Potential confounders were entered into multivariable models in steps: Model 1 included sociodemographic variables, and Model 2 added health variables. The analyses are presented as unstandardised beta-coefficients (B) with a 95% confidence interval, and R squares (R²).

Drop-out analysis was conducted by comparing characteristics of the participants lost to follow-up at T2, versus the participants, using Pearson's Chi² test and independent sample t-tests. Such analysis was also performed to compare the characteristics of those who were excluded due to missing data on the WHO-10 at T1 and/or T2, versus the final study sample. To investigate if the exclusion of these participants changed the results presented in this paper, sensitivity analyses were conducted where all analyses were performed for a sample including those 131 with missing data on WHO-10 ($n=1371$). For all statistical analyses, the alpha level was set at $p < 0.05$. All statistical analyses were conducted using IBM SPSS Statistics, version 25.

Results

Loss to follow-up and analyses of missing data

Of the 1793 participants at T1, 411 were lost to follow-up at T2 (Figure 2). These were more likely to be younger, to have secondary education (versus university education), to be born outside the Nordic countries, to have persistent mental illness, poorer mental well-being, and to have perceived a need for mental healthcare at some time in life, compared to the T2 participants ($p < 0.05$). No statistically significant differences in mental healthcare-seeking, or perceived care-sufficiency were observed (see Supplementary Table 1, Additional file 1). The group with missing data on WHO-10 were more likely to be older, to be born outside the Nordic countries, and to have primary education (versus secondary and university education), compared to the study sample ($p < 0.05$). No statistically significant differences in persistent mental or physical illness, mental well-being, perceived need for mental healthcare, mental healthcare-seeking, or perceived care-sufficiency were observed (see Supplementary Table 2, Additional file 2).

Characteristics of the study sample

Of the study sample of 1240 men, 24% ($n=293$) reported that they had perceived a need for mental healthcare at some time in life. Of those, 37% had refrained from seeking care (*non-care-seekers*, Table 1). A higher proportion of non-care-seekers were younger, and did not have a persistent mental illness, compared to care-seekers ($p<0.05$). Among the care-seekers, 29% reported that they had received insufficient mental healthcare when seeking it, i.e. did not receive the care that they needed (*insufficient care-perceivers*, Table 1). A higher proportion of insufficient-care-perceivers were younger, compared to sufficient-care-perceivers ($p<0.05$).

	Total sample N=1240	Non-need-perceivers n=947 ^b	Need-perceivers by care-seeking n=293		Care-seekers by perceived care-sufficiency n=182	
			Non-care-seekers n=109 ^b (37%)	Care-seekers n=184 ^b (63%)	Insufficient care-perceivers n=52 ^c (29%)	Sufficient care-perceivers n=130 ^c (71%)
Time 1, 2008	n	% ^d	% ^d	% ^d	% ^d	% ^d
<u>Age, years</u>						
19-30	221	18	24	14	21	12
31-50	567	45	51	49	56	46
51-64	452	38	25	37	23	42
<u>Education</u>						
Primary or less	233	19	15	20	18	21
Secondary	568	46	57	43	41	43
University	428	35	28	37	41	36
Missing	11					
<u>Birth country</u>						
Nordic	1156	94	91	91	89	92
Others	84	6	9	9	12	8
<u>Persistent physical illness</u>						
Yes	546	41	52	55	60	54
No	694	59	48	45	40	46
<u>Persistent mental illness</u>						
Yes	42	0	3	19	23	18
No	1198	100	97	81	77	82

^a By perceived need for mental healthcare, healthcare-seeking, and perceived sufficiency of healthcare

^b Stratified by "Have you at any time felt so mentally unwell that you felt a need to seek care?" (No, Yes but did not seek, Yes)

^c Stratified by "Do you think you received the care that you needed?" (No, Yes). Disperse numbers due to $n=2$ with missing data on the question.

^d Column proportions. Valid proportions, missing values excluded.

Comparisons of mental well-being scores using T-tests

In the total study sample, the mean mental well-being score was 18.9 at both T1 and T2 (results not shown). Non-care-seekers had mental well-being scores that were 1.7 points lower at T1, compared to care-seekers (mean 14.3 versus 16.0, $p=0.02$, see Table 2). When stratifying these results for sociodemographic and health variables, non-care-seekers still had lower mental well-being scores in most groups at T1, although the differences were only statistically significant for a few of them (i.e. among those with university education, no persistent physical illness, and no persistent mental illness). At T2, there was no longer a difference in mental well-being scores between non-care-seekers and care-seekers (mean 15.7 versus 15.8, $p=0.84$). In line with this, there were no consistent differences in mental well-being scores between non-care-seekers and care-seekers at T2 when stratifying these results (Table 2).

Among care-seekers, insufficient care-perceivers had mental well-being scores that were 2.4 points lower at T1, compared to sufficient-care-perceivers (mean 14.2 versus 16.6, $p=0.02$, Table 2). When stratifying these results for sociodemographic and health variables, insufficient care-perceivers had lower mental well-being scores in all groups at T1, but the differences were only statistically significant for a few of them (i.e. among those aged 31-50 years, those with persistent physical illness, and

those with persistent mental illness). At T2, there was no longer a statistically significant difference in mental well-being scores between insufficient care-perceivers and sufficient care-perceivers (mean 15.0 versus 16.1, $p=0.38$, Table 2). When stratifying these results, insufficient care-perceivers had lower mental well-being scores in some of the groups at T2, but this was only statistically significant among those with persistent mental illness.

	By mental healthcare-seeking						By perceived sufficiency of mental healthcare					
	Time 1, 2008			Time 2, 2009			Time 1, 2008			Time 2, 2009		
	Non-care-seekers	Care-seekers	P*	Non-care-seekers	Care-seekers	P*	Insufficient care-perceivers	Sufficient care-perceivers	P*	Insufficient care-perceivers	Sufficient care-perceivers	P*
	Mean ¹ (n)	Mean ¹ (n)		Mean ¹	Mean ¹		Mean ¹ (n)	Mean ¹ (n)		Mean ¹	Mean ¹	
Total	14.3 (109)	16.0 (184)	0.02	15.7	15.8	0.84	14.2 (52)	16.6 (130)	0.02	15.0	16.1	0.38
<u>Age, years</u>												
19-30	14.5 (26)	13.2 (26)	0.41	16.3	15.2	0.42	13.2 (11)	13.3 (15)	0.97	16.3	14.4	0.36
31-50	14.5 (56)	16.4 (90)	0.05	14.9	15.7	0.48	14.2 (29)	17.3 (60)	0.03	14.5	16.2	0.34
51-64	13.9 (27)	16.5 (68)	0.09	16.6	16.2	0.82	14.9 (12)	16.8 (55)	0.41	15.1	16.4	0.58
<u>Education</u>												
Primary or less	14.7 (16)	14.7 (36)	0.99	17.0	14.6	0.16	12.6 (9)	15.4 (27)	0.19	12.3	15.4	0.17
Secondary	14.6 (60)	15.2 (78)	0.55	15.8	14.9	0.43	13.6 (21)	15.8 (56)	0.19	13.3	15.5	0.20
University	13.9 (30)	17.4 (68)	0.01	14.9	17.5	0.05	15.2 (21)	18.3 (46)	0.06	17.4	17.4	0.99
<u>Country of birth</u>												
Nordic country	14.6 (99)	15.9 (168)	0.09	16.0	15.9	0.86	14.4 (46)	16.4 (120)	0.06	15.4	16.0	0.63
Outside Nordic	11.4 (10)	16.6 (16)	0.06	11.9	14.9	0.19	12.8 (6)	18.8 (10)	0.09	12.0	16.7	0.15
<u>Persistent physical illness</u>												
Yes	14.0 (57)	14.5 (101)	0.62	15.2	15.1	0.91	12.6 (31)	15.3 (70)	0.05	13.7	15.7	0.18
No	14.7 (52)	17.8 (83)	0.00	16.2	16.7	0.62	16.6 (21)	18.1 (60)	0.29	16.9	16.5	0.81
<u>Persistent mental illness</u>												
Yes	8.3 (3)	10.7 (35)	0.53	11.7	10.2	0.71	7.9 (12)	12.1 (23)	0.02	6.0	12.4	0.01
No	14.5 (106)	17.2 (149)	0.00	15.8	17.1	0.07	16.1 (40)	17.6 (107)	0.15	17.7	16.9	0.45

* P-value. Independent sample t-test of mean difference. Bold text indicates $p<0.05$.

¹ Lower score indicates poorer mental well-being on WHO (Ten) Well-being Index, 0-30 p.

Comparisons of mental well-being scores using multivariable linear regression analysis

In Table 3, we compared mental well-being scores between non-care-seekers versus care-seekers, and insufficient- versus sufficient care-perceivers using crude and multivariable linear regression. The unstandardized beta-coefficients (B) represent the differences in scores. At T1, non-care-seekers had mental well-being scores that were about two points lower in both the crude and the fully adjusted model, compared to care-seekers (Model 2, $B = -2.49$, 95% CI -3.86 to -1.12, Table 3). However, there was no statistically significant difference in scores between non-care-seekers and care-seekers at T2 (Model 2, $B = -1.11$, 95% CI -2.59 to 0.38, Table 3). Among care-seekers, insufficient care-perceivers had mental well-being scores that were about two points lower at T1 compared to sufficient care-perceivers, in both the crude model, Model 1 (adding sociodemographic variables), and Model 2 (adding health variables). However, this difference was not statistically significant in the fully adjusted

Model 2 (B= -1.70, 95% CI -3.53 to 0.14). There was no statistically significant difference in scores between insufficient care-perceivers and sufficient care-perceivers at T2 (Model 2, B= -0.52, 95% CI -2.54 to 1.50, Table 3).

In sum, non-care-seekers were more likely to have lower mean mental well-being scores at T1, but not at T2, also when controlling for potential confounders. Insufficient care-perceivers were not more likely to have lower mean mental well-being scores at T1 or T2, when adjusting for potential confounders.

Table 3. Comparison of mental well-being scores between non-care-seekers versus care-seekers, and insufficient- versus sufficient-care-perceivers. Crude and multivariable linear regression analyses.			
	Non-care-seekers vs care-seekers (among need-perceivers, n=293)		
	Crude	Model 1 ²	Model 2 ³
Time 1, 2008			
Unstandardised B ¹	-1.65 (-3.08 to -0.22)	-1.43 (-2.88 to 0.03)	-2.49 (-3.86 to -1.12)
P-value	0.02	0.05	0.00
R2	0.02	0.04	0.20
Time 2, 2009			
Unstandardised B ¹	-0.15 (-1.68 to 1.37)	0.00 (-1.55 to 1.54)	-1.11 (-2.59 to 0.38)
P-value	0.84	1.00	0.14
R2	0.00	0.02	0.15
Insufficient vs sufficient care-perceivers (among care-seekers, n=182)			
Time 1, 2008			
Unstandardised B ¹	-2.44 (-4.47 to -0.41)	-2.29 (-4.35 to -0.23)	-1.70 (-3.53 to 0.14)
P-value	0.02	0.03	0.07
R2	0.03	0.08	0.28
Time 2, 2009			
Unstandardised B ¹	-1.07 (-3.24 to 1.10)	-1.02 (-3.23 to 1.18)	-0.52 (-2.54 to 1.50)
P-value	0.33	0.36	0.61
R2	0.01	0.04	0.21

¹ Represents the difference in scores. Negative values indicate lower mental well-being on WHO (Ten) Well-being Index, 0-30 p. 95% confidence intervals.

² Adjusted for age category, education, country of birth.

³ Adjusted for age category, education, country of birth, persistent physical illness, and persistent mental illness.

Sensitivity analysis

The sensitivity analyses, including those that had missing data on the WHO-10 at T1 and/or T2, were consistent with the results presented above, with one exception. The multivariable linear regression analyses showed a statistically significant association between being an insufficient care-perceiver and having lower mental well-being scores at T1, also in the fully adjusted model adding health variables, in contrast to the results above (Model 2, B=-1.91, 95% CI -3.71 to -0.10, see Supplementary Table 3, Additional file 3).

Discussion

This is the first longitudinal study on a population-based sample of men in Sweden investigating whether A) refraining from seeking mental healthcare, and B) perceiving care as insufficient when seeking it are detrimental to men's mental well-being. Our hypotheses were only partially supported. Firstly, we observed that 37% of the men who had perceived a need for mental healthcare at some time in life had refrained from seeking care. In line with hypothesis A1, they had poorer mental well-being at T1, compared to those who sought care. However, in contrast to hypothesis A2, they did not have poorer mental well-being one year later. Secondly, we observed that 29% of the men who had sought care perceived that they had received insufficient care, i.e. did not receive the care that they needed. In line with hypothesis B1, they had poorer mental well-being at T1, compared to those who perceived it as sufficient. However, this result was not statistically significant when adjusting for potential confounders, and the hypothesis was rejected. Likewise, insufficient care-perceivers did not have poorer mental well-being one year later, in contrast to hypothesis B2. Therefore, hypothesis A1 was confirmed, but hypotheses A2, B1, and B2 were rejected

(see Fig 1). Henceforth, we will discuss 1) the poorer mental well-being among non-care-seekers at T1, 2) the indication of poorer mental well-being among insufficient-care-perceivers at T1, and 3) the lack of persistent differences at T2.

Poorer mental well-being among non-care-seekers at T1

The observed poorer mental well-being among non-care-seekers at T1 is worrying, as poor mental well-being using WHO-10 is associated with a higher likelihood for depression (38-40) and suicidality (40). This result is in line with the large body of research showing the benefits of receiving treatment (4, 5). More importantly, it supports the suggestion that refraining from seeking mental healthcare is detrimental for men's mental well-being also on a population level (7-11). The poorer mental well-being may reflect a risk for more severe consequences, such as premature death and suicide, and the use of maladaptive coping strategies, such as high alcohol consumption (7), previously explained by adherence to health-hazardous masculinity norms (21). However, more research is needed to confirm this result and investigate why non-care-seekers had poorer mental well-being. Is it the lack of treatment in itself or other factors? For example, one block to mental healthcare-seeking is perceived stigma and embarrassment (26, 44, 45), which is in itself associated with poorer quality of life (46), drinking to cope, and social isolation (47).

It should be noted that the difference in mental well-being scores between non-care-seekers and care-seekers at T1 was small. However, even small differences may have major implications on population level given the high prevalence of depression, anxiety- and alcohol use disorders (1), and refraining from seeking mental healthcare among men (6, 26)

Indication of poorer mental well-being among insufficient care-perceivers at T1

Even in insufficient care-perceivers, the t-tests and the linear regression analysis showed poorer mental well-being at T1, compared to sufficient care-perceivers. However, this result was not statistically significant when controlling for sociodemographic and health variables (Table 3). This is probably due to the small sample in this sub-group analysis, as the sensitivity analysis on a larger sample showed a statistically significant difference (see Supplementary Table 3, Additional file 3). Our result is in line with previous research that has shown an association between dissatisfaction with care and depression (36, 37). The indicated poorer mental well-being among insufficient care-perceivers may be due to not receiving care of adequate quality (20), as consistent evidence shows a positive association between perceived sufficiency of care and quality of care (27).

However, as we had no measure of clinical sufficiency of the care, it is also possible that insufficient care-perceivers were offered care of adequate standards but did not find it appropriate based on their perceived needs. The perception of need for care is a complex process, impacted by e.g., cultural and religious beliefs, knowledge about mental illnesses, stigmatizing attitudes, and gender norms (48, 49). For example, traditional masculinity norms can make it difficult to identify with a person needing mental health treatment, with a negative impact on men's adherence and treatment efficacy (21). Masculinity norms can also increase men's self-stigma, and make men more sceptical and non-adherent to treatment (21). These barriers may negatively impact the perceived sufficiency of the care. The healthcare system should help men to overcome these barriers by providing high-quality mental healthcare adapted to men's needs. Therefore, more knowledge is needed on what kind of mental healthcare different groups of men find appropriate and sufficient based on their needs.

No persistent differences in mental well-being at T2

Although the expected differences in mental well-being between non-care-seekers and care-seekers, and insufficient care-perceivers and sufficient care-perceivers, were observed at T1, we found no differences one year later, at T2. This result is in line with previous studies showing that the majority of those with common mental disorders who do not seek treatment remit (35, 50, 51). Results from a longitudinal study on men and women showed that among persons with untreated depression, anxiety, or substance disorder, 50% remitted within three years (50). A Swedish study also showed that the most common reason for refraining from seeking mental healthcare was believing that the condition would resolve by itself (26). However, our results do not support any complete remission of symptoms, as both non-care-seekers and care-seekers (regardless of the perceived sufficiency of the care) still had mean mental well-being scores below the population mean at T2 (15.7, and 15.8, compared to

the population mean 18.9). This is worrying, as the population mean should be the goal for complete remission (40). The lack of full recovery at T2 highlights a need for improved mental healthcare, but also a need to target other societal factors that may have greater importance for men's mental well-being.

It should be noted that we lack data on care-seeking between T1 and T2, which could explain the improved mental well-being of non-care-seekers and insufficient care-perceivers. They may have sought and received sufficient care between T1 and T2. We also lack data on informal help-seeking among family and friends and access to other resources (e.g., social, psychological, and economic). Privileged groups with milder conditions may improve their mental well-being using self-help strategies. Other groups of men may be more vulnerable to severe consequences (52), due to social position and/or a greater clinical need for care. This is indicated by our stratified analyses (Table 2). Among those with persistent mental illness, insufficient care-perceivers had poorer mental well-being at both T1 and T2. Among those born *outside* Nordic countries, non-care-seekers and insufficient care-perceivers had poorer mental well-being than the corresponding groups born *in* Nordic countries, at both T1 and T2, although the results were not statistically significant. However, these results should be treated with great caution due to the small numbers in the sub-samples. Future studies with larger samples are needed, that allow for stratified analyses of differences among groups of men.

In sum, this study gives some empirical evidence to support the hypotheses of detrimental outcomes of refraining from seeking mental healthcare and of perceiving the care as insufficient when seeking it among men in Sweden. However, the relatively small differences at T1 and the lack of persistent differences at T2 point in another direction.

Implications

The small and non-persistent differences observed in this study could reflect a limited ability of the mental healthcare services to improve men's mental well-being. Other factors may be more important. Masculinity norms have previously been pointed out as the cause of men's reluctance to seek care, and other maladaptive coping strategies (7). WHO recently called for changes in masculinity norms on a societal level to improve men's mental well-being (53). To reach men there is a need for outreach strategies through media, workplaces, pubs, and sports associations. Changes in masculinity norms needs to be brought about in society, including the healthcare system (53).

There is especially a need for an intersectional approach in the design of interventions and research (53, 54) as some groups of men may be at higher risk for poorer mental well-being based on unmet need for mental healthcare, as indicated by our stratified analyses.

Methodological considerations

The major limitation of this study is the use of secondary data. One drawback is that the questions measuring the exposures (i.e., refraining from seeking care, or perceiving the care as insufficient) referred to "any time in life" but were measured at T1. Therefore, potential outcomes, e.g., poorer mental well-being, could have occurred before T1, at T1, and/or at T2. Due to this limitation, and the observational nature of the data, we are unable to draw conclusions about causality. For future studies, we recommend using a more specified time frame for the exposures, e.g., care-seeking within the last 12 months.

The rationale for still using these questions is the lack of previous research within the field. Also, we believe that the participants replied to the questions on care-seeking based on what was their most recent or severe experience, as refraining from seeking care, or perceiving the care as insufficient is not necessarily a binary event. Therefore, these experiences could have had an effect on mental well-being at both T1 and T2.

The longitudinal design, with measurement of mental well-being at both T1 and T2, also has other advantages. Firstly, a difference observed at two time points is more reliable than a difference observed at one time point only, and could imply a more stable detrimental effect. Secondly, the results from T2 allowed us to challenge the results from T1. For example, the lack of persistent differences at T2 highlights a potential uncertainty of the findings at T1. The risk for reverse causality also decreased at T2. At T1, those with poorer mental well-being may be more likely to retrospectively report receiving insufficient

care due to current pessimism related to depression (55, 56). Thirdly, without the data from T2 we would not have detected that neither care-seekers and non-care-seekers were fully recovered, as they still had poorer mental well-being than the population mean.

Another aspect to consider is the participation rate of 34%. It may be problematic if participation was selective, e.g. if the association between the exposures and the outcome was stronger among non-participants. There is some research pointing in this direction. Non-participating men have been shown to be less likely to seek care (57), and non-participants have been shown to be more likely to have a psychiatric disorder than participants (58). This is in line with our finding that those lost to follow-up were more likely to have poor mental well-being and persistent mental illness. However, we found no differences in care-seeking. Plausibly, non-participants share characteristics related to the study's exposures and outcomes, e.g. belonging to groups in adverse life situations who would benefit the most from treatment. Therefore, this study could have underestimated the negative effect of not receiving care. Also, the relatively low participation rate, and the skewed participation based on sociodemographic characteristics (33) may have contributed to the limited statistical power in the adjusted and stratified analyses, leading to a risk of undetected true differences, i.e. a type II error.

In sum, due to these limitations the result should be generalised with caution. Future research is needed using primary data and more refined methodology, including a more specific time frame for the assessment of the exposures, longer follow-up, and larger sample sizes. However, this study also has some relevant strengths, namely: 1) the relatively large population-based sample of men, 2) inclusion of both refraining from seeking care *and* perceiving the care as insufficient as exposures 3), access to longitudinal data on mental well-being, 4) the use of the reliable and validated instrument WHO-10 (41, 42), and 5) stratified data on sociodemographic and health characteristics. In addition, this is one of the very few population-based studies investigating potential detrimental outcomes of not receiving sufficient mental healthcare among men, and the only study from Sweden. Therefore, we believe that this study adds to the literature on men's mental healthcare-seeking.

Conclusion

This is the first longitudinal study on a population-based sample of men in Sweden investigating whether refraining from seeking mental healthcare, and perceiving care as insufficient when seeking it are detrimental to men's mental well-being. The current results show that refraining from seeking mental healthcare and perceiving the care as insufficient are potentially detrimental to men's mental well-being on a population level, but that the detrimental effect is limited in size and over time. However, due to the lack of data on the exact time of these exposures, further longitudinal studies are needed, using more refined methodology. In addition, we suggest interventions to increase men's mental healthcare-seeking and to provide mental healthcare that is perceived as sufficient. This cannot be done solely by the healthcare system. Instead, it must be done on a societal level by targeting health-hazardous masculinity norms that influence men's risk behaviours and perceptions about mental healthcare.

Declarations

Ethics approval and consent to participate

The HAP was conducted in accordance with the 1964 Declaration of Helsinki and its later amendments. Informed consent was obtained from all individual participants included in the study. The HAP was approved by the Ethics Committee, University of Gothenburg (registration number 039-08).

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available from the Swedish National Data Service, <https://snd.gu.se/sv/catalogue/study/snd0870>, but restrictions apply to the availability of this data.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

SO initiated the study design, performed the statistical analyses and wrote the first draft and main revisions of the manuscript. GH is PI for HAP responsible for the overall aim and data collection. All authors contributed to the study design, interpretation of data and critical revision of the manuscript, and approved the final version of the manuscript.

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Figures

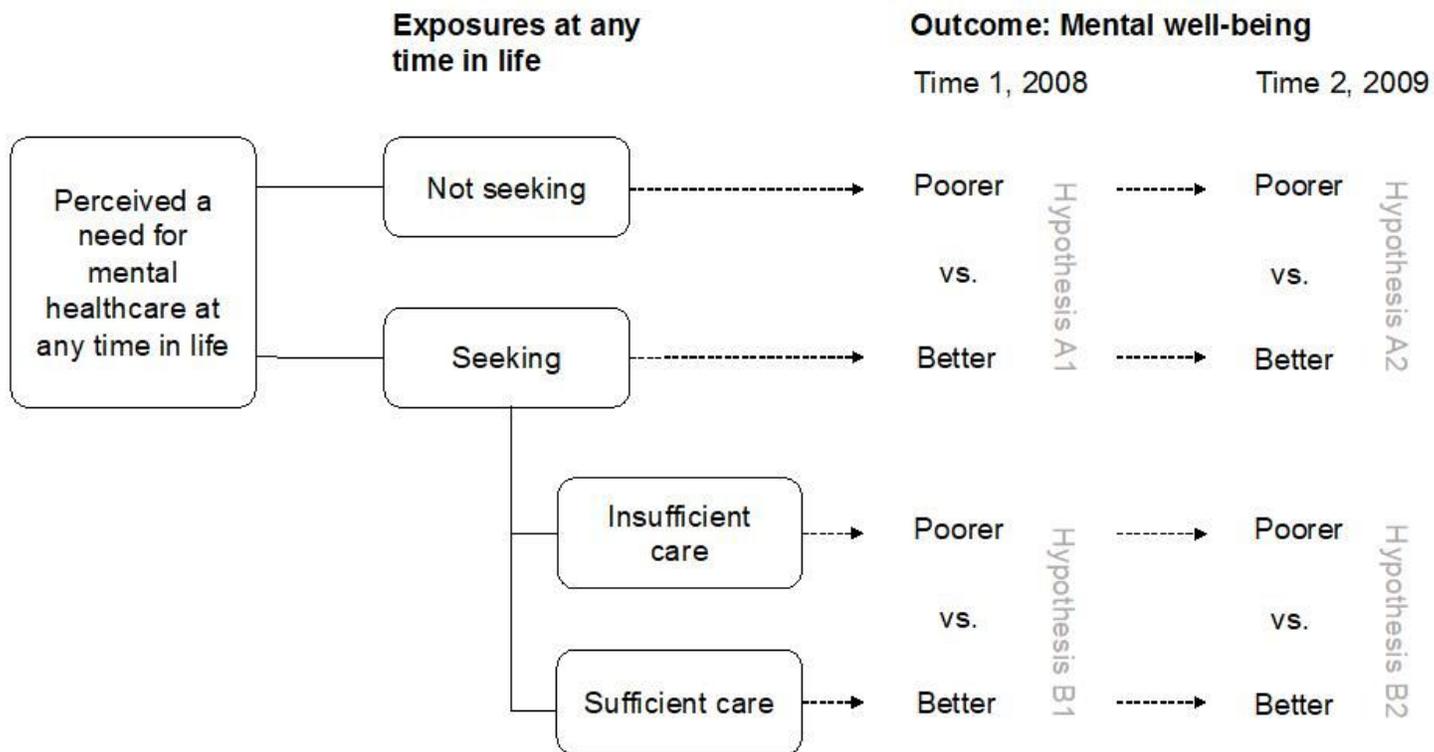


Figure 1

Hypotheses and study design

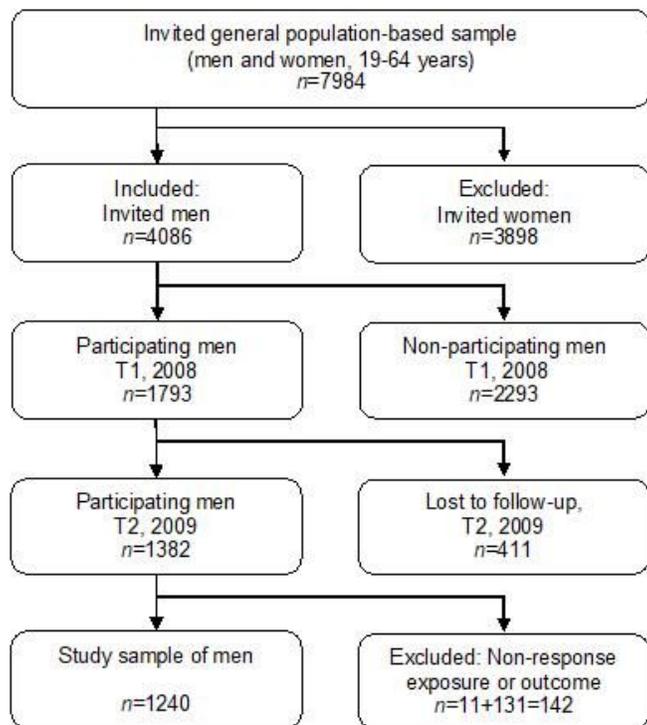


Figure 2

Flow chart of the study sample of men.

Supplementary Files

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