PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Consultations in general practices with and without mental health nurses: an observational study from 2010-2014
AUTHORS	Magnee, Tessa; de Beurs, Derek; de Bakker, Dinny; Verhaak, Peter

VERSION 1 - REVIEW

REVIEWER	Andrew Moscrop Oxford University, UK
REVIEW RETURNED	01-Mar-2016

GENERAL COMMENTS	Terminology was a bit of an issue. For example... 1) Researchers tend to refer in English to 'mental health problems', rather than 'mental problems' and i might suggest sticking to norms. 2) The phrases 'mental problems' and 'psychological symptoms' seemed to be used as though interchangeable, but i am not sure that they are. 3) i am not sure that 'relational problems with a partner' constitutes a 'mental problem'. All this might seem a bit pedantic, but i think that since the terminology in question refers to the major focus of this paper it is important to get it right. Later in the paper you refer to 'psychological and social problems' - i thought this was closer to being an appropriate description of what you were looking at. The description of 'participants' was a bit unclear because the participating practices and patients changed during the course of the study. i wondered whether it might be worth including a table to summarise this. "Year; Number of Practices; Number of Patients" - that might do. Otherwise, this study revealed some interesting findings about the role of mental health nurses.

REVIEWER	Rodger Kessler Ph.D. ABPP University of Vermont College of Medicine, uSA
REVIEW RETURNED	16-Mar-2016

GENERAL COMMENTS	This is a generally well written manuscript, but there are number of typos. The paper makes a modest contribution to the field, but there are numbers of issues that limit enthusiasm. Given the rich data sources, how to the increases seen contrast with increase referrals to or treatment o,f the population at large? Also Given the preponderance of modest to moderate presentations, are these presentations solely for psychological issues or are they associated with other medical co morbidities. Given the medical expertise of nursing it can be surmised that patients with co morbid medical and

	psychological issues may be of importance to target. Lastly, do these practices sometimes have other mental health professionals as part of the practices? If yes, how, if at all are such practices different than practices with sole MHN support.

REVIEWER	Cape, John University College London, UK
REVIEW RETURNED	18-Mar-2016

GENERAL COMMENTS	The study is a well conducted analysis of a large database of primary care consultations of patients with diagnoses or symptoms of mental health problems over a period of 5 years, used to explore the impact on primary care utilisation of mental health nurses being introduced into general practices in the Netherlands. The conclusion that the mental health nurses do not reduce GP workload but provide additional support and treatment for patients with common mental health problems is what one would have anticipated from studies of attachment and linkage of other types of mental health professionals (counsellors, psychologists, social workers) to primary care, but is a useful addition to the literature nonetheless. However, this literature is not referenced or discussed in the paper, which is a major omission that needs addressing. There are a couple of areas where there are alternative interpretations of the data: 1. Number of consultations with a mental health diagnosis or symptoms in the database will reflect not just number of patients with such problems, but GP (and MHN) recognition and recording practices. The increased proportion of patients with diagnoses of mental health problems in practices with MHNs and over time may therefore be a function of recognition or recording rather than actual patient differences. GPs with MHNs may be more likely to diagnose mental health problems either because they are more interested in mental health to start with (as the authors indicate in their discussion) or that, as a result of having MHNs in the practice, they become more aware of or likely to record mental health problems 2. Could increased number of consultations over time reflect increased GP and/or MHN capacity per 1000 registered patients over time - if there is more capacity this is likely to translate into more patients being seen? A couple of minor points, not required for revision: 1. Data in the supplementary table indicate general practices without a MHN were more likely to be solo practices with a tendency to have an older population. In the UK this would be suggestive of practices of single handed older GPs who might well be less interested in mental health problems (and indeed which are low on a variety of quality indices of care) and therefore less likely to recognise and record mental health problems 2. The low number of older patients seen by MHNs may not as suggested be that MHNs do not have the skills to treat such patients, but a bias against referring older patients well recognised in studies of referral rates to psychological therapies.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Terminology was a bit of an issue. For example... 1) Researchers tend to refer in English to 'mental health problems', rather than 'mental problems' and i might suggest sticking to norms.

We agree with the reviewer that used terminology may not be ideal. We have replaced ‘mental problems’, which was mainly chosen with the purpose of limiting number of words, by ‘psychological or social problems’ in the revised version of our manuscript. We think this is a more accurate description of the used data.

2) The phrases 'mental problems' and 'psychological symptoms' seemed to be used as though interchangeable, but i am not sure that they are.

The phrases ‘mental problems’ and ‘psychological symptoms’ are indeed not interchangeable. In our view, ‘mental (health) problems’ reflect a broader concept, which covers both psychological symptoms and psychological disorders (also see method section, line 99-100). As mentioned earlier, we have replaced ‘mental problems’ by ‘psychological or social problems’ in the revised version of our manuscript. We have also checked the manuscript for the correct use of ‘psychological problems’ (when we refer to both psychological disorders and symptoms) and ‘psychological symptoms’ (when we want to refer to psychological symptoms exclusively).

3) i am not sure that 'relational problems with a partner' constitutes a 'mental problem'.
All this might seem a bit pedantic, but i think that since the terminology in question refers to the major focus of this paper it is important to get it right. Later in the paper you refer to 'psychological and social problems' - i thought this was closer to being an appropriate description of what you were looking at.

We agree that we should maybe not refer to social problems, such as relational problems, as ‘mental problems’. As mentioned earlier, we have replaced ‘mental problems’ by ‘psychological or social problems’ in the revised version of our manuscript.

The description of 'participants' was a bit unclear because the participating practices and patients changed during the course of the study. i wondered whether it might be worth including a table to summarise this. "Year; Number of Practices; Number of Patients" - that might do.

Participating practices (and patients) indeed varied over the course of our study, as NIVEL PCD has a dynamic nature. Although the total number of participating practices and included patients are presented in the supplementary file, we think that this information may be stated more clearly in the manuscript itself. Because the instruction for authors recommends not to exceed a total number of five figures and tables for readability, we have not added an extra table, but we have mentioned explicitly in the method section that NIVEL PCD is a database of dynamic nature and that the number of participating practices varied over the study period:

“NIVEL PCD has a dynamic nature; the number of participating general practices varies over time and thus varied over our study period. In general, the number of participating practices increases every year, but practices can also discontinue participation.”

Otherwise, this study revealed some interesting findings about the role of mental health nurses.

Reviewer: 2

This is a generally well written manuscript, but there are number of typos.

We have checked our manuscript for typos.

The paper makes a modest contribution to the field, but there are numbers of issues that limit enthusiasm. Given the rich data sources, how to the increases seen contrast with increase referrals to or treatment of the population at large?

It would indeed be highly interesting to relate our results to referral rates, or to compare them to numbers of treated patients in specialized or secondary care in recent years. Unfortunately, data on referral rates were not available for our study period, as the referral records of most GPs were not complete. Data on referral rates may be used in future research, as NIVEL PCD has started collecting these data through an alternative method. We have included this limitation explicitly in our discussion section:

“Unfortunately, referral records to specialized care were not complete, and could thus not be used for this study.”

We were able to compare our results to GP consultations for all health problems – including somatic problems- , which seemed to be relatively stable in recent years (see discussion section, line 236-239). Unfortunately, we could not relate our results to trends in number of treated patients in the population at large, as NIVEL PCD only contains data from primary care, an does not contain data from specialist care. We recognize in your comment our intention to emphasize the importance of future research on this topic. Therefore, in the revised version of our manuscript, we have extended the part of the discussion section on this topic:

“It is plausible that the presence of mental health nurses in general practice influences the number of patients treated in other settings of mental health care, such as specialized care. The increase of patients in general practice will possibly be accompanied by a decrease of patients in specialized care, as the early treatment of patients might prevent them from needing further treatment. On the other hand, it is also possible that as more patients are detected and referred by GPs and MHNs, more patients will be treated by specialists. To study the effects of the MHN on the patient numbers in other settings of mental health care, future research is needed which combines data from NIVEL PCD with national data from specialized care.”

Also Given the preponderance of modest to moderate presentations, are these presentations solely for psychological issues or are they associated with other medical co morbidities. Given the medical expertise of nursing it can be surmised that patients with co morbid medical and psychological issues may be of importance to target.

The reviewer is right that the mental health nurse may be of (extra) importance in the recognition, treatment and referral of patients with comorbid (psychological or somatic) problems. We limited our study to patients with at least one consultations regarding one type of psychological or social problems (defined as a P or Z diagnosis according to the ICPC), and could thus not draw any conclusions on the role of comorbid problems. We do know that a small part of the patients that visit the MHN (roughly 10%) do have recorded somatic problems instead of psychological or social problems. Probably, (comorbid) psycholocial or social problems were not recorded adequately, as apparently these patients were in need of support by the MHN. We have added the following lines to our discussion section to highlight this topic:

"It is not clear to what extent mental health nurses recognize and treat patients with comorbid problems. Presumably, the presence of a mental health nurse in a general practice increases the chance that comorbid psychological problems are detected. Patients with primarily somatic problems may also receive counseling or support by the MHN to learn them to manage a somatic disease or comorbid depressive or anxious feelings. Previous research in the UK suggests that the primary care setting is appropriate for the support of people with chronic psychological diseases (Miller et al., 2014; Richards et al., 2013) or comorbid somatic diseases (Coventry et al., 2014)."

Lastly, do these practices sometimes have other mental health professionals as part of the practices? If yes, how, if at all are such practices different than practices with sole MHN support.

Many Dutch general practitioners closely collaborate with a primary care psychologist. Those psychologists are often located in the same health centers as GPs are. According to a NIVEL questionnaire amongst GPs participating in NIVEL PCD in 2014, around half of them are located at an address shared with a primary care psychologist. It is plausible that the collaboration between GPs and primary care psychologists influences the number of consultations for psychological and social problems in general practice. The collaboration with a psychologist may increase the GP's awareness or ability to recognize psychological or social problems, but it may also influence the referral rates of the GP, in the same way the presence of a mental health nurse can. The impact of the primary care psychologist is expected to be smaller than the impact of the mental health nurse, as primary care psychologists are not employed by the GP and thus not as closely involved in general practice as mental health nurses are. Unfortunately, we do not know to what extent all general practices included in this study collaborated with a primary care psychologist. We do know that group practices are often the practices in which GPs closely collaborate with a primary care psychologist, and we corrected analyses for this variable. Further on, we have elaborated in our discussion section on the possible effects of collaboration between GPs and mental health professionals (also see response on first comment reviewer 3).

Reviewer: 3

The study is a well conducted analysis of a large database of primary care consultations of patients with diagnoses or symptoms of mental health problems over a period of 5 years, used to explore the impact on primary care utilisation of mental health nurses being introduced into general practices in the Netherlands.

The conclusion that the mental health nurses do not reduce GP workload but provide additional support and treatment for patients with common mental health problems is what one would have anticipated from studies of attachment and linkage of other types of mental health professionals (counsellors, psychologists, social workers) to primary care, but is a useful addition to the literature nonetheless. However, this literature is not referenced or discussed in the paper, which is a major omission that needs addressing.

Literature on this topic is integrated in the discussion part of our manuscript. We have added the following lines:

"Our finding that mental health nurses probably do not reduce GP workload, but provide additional support, is in line with a previous study on collaborative care, involving a depression care manager in primary care and consultation of mental health specialists (Green et al., 2014). Within that study, no differences were found in resource use, including GP care, between patients in usual and patients in collaborative care. However, a Cochrane review on counselling in primary care suggested that although counseling in primary care does not seem to reduce (total) healthcare costs, it may reduce some types of health care utilization (Bower et al., 2011). Another review on psychiatric consultation

in primary care also concluded that it may reduce utilization of health care services (Van der Feltz-Cornelis et al., 2010)."

There are a couple of areas where there are alternative interpretations of the data:
1.Number of consultations with a mental health diagnosis or symptoms in the database will reflect not just number of patients with such problems, but GP (and MHN) recognition and recording practices. The increased proportion of patients with diagnoses of mental health problems in practices with MHNs and over time may therefore be a function of recognition or recording rather than actual patient differences. GPs with MHNs may be more likely to diagnose mental health problems either because they are more interested in mental health to start with (as the authors indicate in their discussion) or that, as a result of having MHNs in the practice, they become more aware of or likely to record mental health problems.

We agree with the reviewer that increases in consultations for psychological and social problems could reflect increases in recording, probably caused by GPs who are more interested or aware of psychological and social problems. The possibility that the presence of a mental health nurse leads to more alert GPs who record psychological problems more often has not yet been discussed in our study. We have added the following lines to our discussion section:

"The presence of a MHN in a general practice may help to make GPs more aware of the importance of recording psychological or social problems during consultations."

"This increased capacity may influence GPs' recording behavior; the possibility to offer short psychological treatment within their own practice may increase their likeliness to record psychological or social problems. In this way, MHNs may contribute to improved accessibility of mental health care."

2.Could increased number of consultations over time reflect increased GP and/or MHN capacity per 1000 registered patients over time - if there is more capacity this is likely to translate into more patients being seen?

Increased number of consultations and patients over time could indeed reflect an increased capacity to treat patients in general practice. MHNs are usually employed for one day a week per standard practice (around 2350 patients), and their working hours that can be reimbursed were slowly increased over the last years. The presence of a mental health nurse in general practice may also influence the recording and referral behavior of the GP, as he knows a patient with psychological or social problems can be treated within a short period of time by a colleague working in the same practice. We have added the following lines to our discussion section:

"The observed increase in number of patients and consultations over time likely reflects an increased capacity in general practice. The MHN is often present for approximately one day a week, and the number of reimbursed working hours for the MHN was slowly increased over the last few years."

A couple of minor points, not required for revision:
1.Data in the supplementary table indicate general practices without a MHN were more likely to be solo practices with a tendency to have an older population. In the UK this would be suggestive of practices of single handed older GPs who might well be less interested in mental health problems (and indeed which are low on a variety of quality indices of care) and therefore less likely to recognise and record mental health problems 2.The low number of older patients seen by MHNs may not as suggested be that MHNs do not have the skills to treat such patients, but a bias against referring older patients well recognised in studies of referral rates to psychological therapies.

Thank you for these comments. It is also our experience that (Dutch) GPs working in solo practices

might be less interested in mental health care. As this points was not required for revision, we did not include it in the revised version of our manuscript to manage the total number of words.
We indeed think that older patients with psychological or social problems may be recognized less often by health care professionals or might for example not be interested in (further) treatment themselves. We have changed some lines in the discussion section on this topic:

"This study showed that mental health nurses treat certain GP patients more often: females, adults, and patients with common psychological symptoms such as depressive or anxious feelings. This finding might be related to the fact that most MHN are educated in general adult care, and not for the treatment of specific subgroups, such as children. Besides, some patient groups, such as elderly, might not want to be treated by an MHN themselves."

VERSION 2 – REVIEW

REVIEWER	Rodger Kessler Ph.D. ABPP University of Vermont College of Medicine, US
REVIEW RETURNED	23-Apr-2016

GENERAL COMMENTS	This is a nicely written manuscript assessing hte presence of limited mental health nursing in primary care, and impact on physician workload. The paper has multiple flaws and limitations that limit its utility. The authors note some of these in the interpretation section- findings may be a function of MD interest or skill;multiple somatic symptoms, which have a high frequency of MH and social underlies, are regularly left unaddressing the mental health issues and thus are not available for the analyses. Th issues ere are other limitations. Using EHR data to identify MHissues, is a notoriously underreported and undercoded activity. PCP's regularly under assess and under treat mh issues. Screening and asessment is highly variable. If not identified certainly referrals are not to be made. Comorbidities with chronic illness, a large focus of primary care behavioral intervention is not well represented in reported referral reasons. The premise that merely adding 1 day per week staff and expecting systematic change in PCP practice is a questionable premise. For all these reasons the manuscript has limited ability to discuss the impact of mental health nursing presence.

REVIEWER	John Cape University College London, UK
REVIEW RETURNED	18-Apr-2016

GENERAL COMMENTS	The authors have addressed the points in my original review, albeit their review of results of studies of attachment and linkage of the range of different types of mental health professionals to primary care is rather limited. For example, the Cochrane review that directly addresses the objective and results of their paper is not the one they cite, but Harkness EF & Bower PJ, On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: effects on the professional practice of primary care providers, DOI:10.1002/14651858.CD000532.pub2. However, I think they have done enough for the paper to be publishable.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 2
Reviewer Name: Rodger Kessler Ph.D. ABPP
Institution and Country: University of Vermont College of Medicine, US
Competing Interests: No competing interests

Please leave your comments for the authors below
This is a nicely written manuscript assessing hte presence of limited mental health nursing in primary care, and impact on physician workload.
The paper has multiple flaws and limitations that limit its utility. The authors note some of these in the interpretation section- findings may be a function of MD interest or skill;multiple somatic symptoms, which have a high frequency of MH and social underlies, are regularly left unaddressing the mental health issues and thus are not available for the analyses. Th issues ere are other limitations. Using EHR data to identify MHissues, is a notoriously underreported and undercoded activity. PCP's regularly under assess and under treat mh issues. Screening and asessment is highly variable. If not identified certainly referrals are not to be made. Comorbidities with chronic illness, a large focus of primary care behavioral intervention is not well represented in reported referral reasons.
The premise that merely adding 1 day per week staff and expecting systematic change in PCP practice is a questionable premise. For all these reasons the manuscript has limited ability to discuss the impact of mental health nursing presence.

Response to reviewer 2:
Thank you for your comments. Throughout the text, we
1. More explicitly stressed that we work with a database with patient health records that has certain limitations
2. Made explicit that mental health problems are in general underreported in primary care.
3. Compared the intraclass coefficient (ICC) from the logistical multilevel analyses at the practice level for each year to estimate variance between practices per year due to differences in screening and assessment.
4. Stressed that the lack of substitution might be due to the limited time MHNs are working in general practice
Below we show per comment which text was added in different sections.

Comment 1. Limitations of the database
We used the verb ‘record’ more often throughout the manuscript, for example in the abstract (“We used logistic and Poisson multilevel regression models to test whether GPs recorded more patients with at least one consultation for psychological or social problems and to analyze the number of consultations over a five year time period.”) and in the principal findings in the discussion section (Between 2010 and 2014, the percentage of Dutch general practices with an MHN increased considerably from 20% to 83%. MHNs as well as GPs record increasing numbers of patients with psychological or social problems, and record an increasing number of consultations per patient.”).
We added the following bullet point to the strengths and limitations of the study: “We analyzed the recording of mental health problems by GPs, not the actual prevalence of psychological and social problems.”

Comment 2. Underreporting of mental health problems
We added the following bullet point to the strengths and limitations of the study: “We analyzed the recording of mental health problems by GPs, not the actual prevalence of psychological and social problems”
Added to discussion: “An important limitation of our study is the presumption that mental health problems are often underreported in patient health records. When mental health problems appear together with chronic illness or vague somatic complaints, as they often do, the GP is likely to report a

somatic problem within the registry. Therefore, our results probably underestimate the absolute number of patients with psychological or social problems in general practice."

Comment 3. Variation in screening and assessment
Added to Strengths and limitations of this study: "The (methods of) screening and assessment of psychological or social problems is likely to vary between practices"
Added to analyses: "The intraclass correlation coefficient (ICC) at the practice level was calculated for each year to estimate variation between practices.[19] Although the ICC is difficult to interpret in logistic models, it does allow us to compare the level of between practice variation over the years."
Added to results: " The intraclass correlation at the practice level ranged from 1.5% in 2010 to 1.2% in 2014."
Added to discussion: "Another important limitation is that GPs vary in screening skills and in registration methods of mental health problems, resulting in between practice variation. By adding a random intercept at the practice level in our analysis, we controlled for any influence of practice variation on our outcomes. Also, as the ICC remained stable over the years (between 1.5 in 2010 and 1.2% in 2014) we argue that it is legitimate to compare the records over the years, as the bias due to differences in screening and assessment methods seems to be similar for each year. "

Comment 4. Alternative explanation for lack of substitution
Added to discussion: "An alternative explanation for the similar workload of the GP might be that nine hours support a week is not enough to significantly change care for mental health patients. Indeed, the ministry of health has proposed to increase the number of hours per practice to forty hours per week. Future studies will show what the effect of the extra hours is on the registration and referral of patients with psychological or social problems."

Reviewer: 3
Reviewer Name: John Cape
Institution and Country: University College London, UK
Competing Interests: None declared

The authors have addressed the points in my original review, albeit their review of results of studies of attachment and linkage of the range of different types of mental health professionals to primary care is rather limited. For example, the Cochrane review that directly addresses the objective and results of their paper is not the one they cite, but Harkness EF & Bower PJ, On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: effects on the professional practice of primary care providers, DOI:10.1002/14651858.CD000532.pub2.
However, I think they have done enough for the paper to be publishable.

Response to reviewer 3:
Thank you for your comment and for providing the relevant reference. We have included this study in our discussion section in addition to the other studies: "Moreover, a Cochrane review on the effects of mental health workers in primary care concluded that their presence might decrease consultation rates, prescriptions of psychotropic drugs, and referrals to specialists. However, effects were modest and results were not consistent amongst all studies included in the review (Harkness et al., 2009)."