Factors influencing short-term effectiveness and efficiency of the care provided by Dutch general practice mental health professionals

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ABSTRACT

Introduction: This study examined whether factors related to general practice mental health professionals (GP-MHPs), that is, characteristics of the professional, the function, and the care provided, were associated with short-term effectiveness and efficiency of the care provided by GP-MHPs to adults in Dutch general practice.

Methods: A prospective cohort study was conducted among 320 adults with anxiety or depressive symptoms who had an intake consultation with GP-MHPs (n = 64). Effectiveness was measured in terms of change in quality-adjusted life years (QALYs) 3 months after intake; and efficiency in terms of net monetary benefit (NMB) at 3-month follow-up. A range of GP-MHP-related predictors and patient-related confounders was considered.

Results: Patients gained on average 0.022 QALYs at 3-month follow-up. The mean total costs per patient during the 3-month follow-up period (£3,864; 95% confidence interval [CI]: £3,196–£4,731) decreased compared to that during the 3 months before intake (£5,220; 95% CI: £4,639–£5,925), resulting largely from an increase in productivity. Providing mindfulness and/or relaxation exercises was associated with QALY decrement. Having longer work experience as a GP-MHP (≥2 years) and having 10-20 years of work experience as a mental health care professional were negatively associated with NMB. Furthermore, a higher number of homework exercises tended to be related to less efficient care. Finally, being self-employed and being seconded from an organization in which primary care and mental health care organizations collaborate were related to a positive NMB, while being seconded from a mental health organization tended towards such a relationship.

Conclusions: Findings seem to imply that the care provided by GP-MHPs contributes to improving patients’ functioning. Some GP-MHP-related characteristics appear to influence short-term effectiveness and efficiency of the care provided. Further research is needed to confirm and better explain these findings and to examine longer-term effects.

Keywords: Costs, General practice mental health professionals, Mental disorders, Net benefit, Netherlands, Quality-adjusted life year

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Introduction

Depression and anxiety are common mental disorders and accountable for large reductions in overall health. Approximately one out of five Dutch adults will experience a depressive disorder (20.2%) at some point in their lives. The same holds true for anxiety disorder (19.6%) (1). Depression is ranked as the single largest contributor to global disability (7.5% of all years lived with disability in 2015); anxiety disorders are ranked sixth (2). Besides their health impact, these common mental disorders cause a significant economic burden due to lost economic
output and their comorbidity with costly medical conditions (3). Consequently, prevention of depression and anxiety is recognized as a major public health challenge (4).

Strengthening mental health care in the primary care setting is considered vital for achieving more effective and efficient preventive mental health care (5). In 2014, the Dutch government introduced reforms of the mental health care system to enable substitution of secondary mental health care by primary mental health care. The aim was to realize better cost control of mental health care, while at the same time improving the accessibility and quality of care (6). Since the reform, the proportion of general practices employing a general practice mental health professional (GP-MHP; a function introduced in 2008) has dramatically increased: from 20% in 2010 to 90% in 2015 (7). Together with the general practitioner (GP), the GP-MHP acts as the gatekeeper to more specialized mental health care facilities. The GP-MHP supports the GP in the care for patients with common mental health problems, such as depressive and anxiety symptoms. The GP-MHP provides support, guidance, and short-term treatment and aims to prevent the development of full-blown mental disorders that require referral to more specialized mental health care. The number of adults consulting a GP-MHP increased significantly in recent years, from almost 427,000 in 2015 to 536,000 in 2018 (8).

Given the crucial role of GP-MHPs in strengthening mental health care in Dutch general practice, it is important to gain insight into the effectiveness and efficiency of the care they provide and their relevant factors (9, 10). In this perspective, factors related to the professional GP-MHP, the function, and the care provided are relevant to examine. As different professions can fulfill the function (11), GP-MHPs’ educational backgrounds differ, including psychology, social psychiatric nursing, and social work. Moreover, some GP-MHPs pursued a postbachelor’s training, while others have not. Other characteristics that vary among GP-MNPs include gender, age, and working experience. As the function is relatively new and developing, substantial variation exists in its organization in daily practice (6), such as the collaboration between GP-MHP and GP, and type of employment arrangement. Some GP-MNPs are employed by a general practice, while others are self-employed or seconded from organizations such as primary care or mental health care organizations (9). Previous research has also indicated variation in the care provided by GP-MNHs in terms of the average number of consultations per patient and referral behavior (6).

The current exploratory study aims to determine whether GP-MHP-related factors, that is, characteristics of the professional, the function, and the care provided, are associated with short-term (3-month) effectiveness and efficiency of the care provided by GP-MHPs to adult patients with anxiety or depressive symptoms. Identifying influencing GP-MHP-related characteristics is relevant to further develop the function and to promote effective mental health care in general practice at reasonable costs.

Methods

Study design and population

A prospective cohort study was conducted in which adults with anxiety or depressive symptoms and who had an intake consultation with a GP-MHP (January 2018–March 2019) were followed up for 3 months. This study was part of a larger study on the quality of care provided by GP-MHPs.

Participating GP-MHPs

To ensure variation among participating GP-MHPs, purposive sampling was performed based on type of employment arrangement (i.e., employed by a general practice, self-employed, or seconded from an organization, such as a primary care or a mental health care organization). From the beginning of 2017, GP-MHPs were recruited via seven local/regional organizations located throughout central Netherlands and representing the different employment types. Additional recruitment took place via the National Association of GP-MHP (LV POH-GGZ). To ensure that sufficient patients participated, additional GP-MHPs were recruited (Fall 2018–Spring 2019) via two additional organizations (one was located in the northeast of the Netherlands) and a call on social media sites of the Trimbos Institute. Eventually, 64 GP-MHPs were included in this study, each of whom recruited one or more participating patients.

Participating patients

Patient eligibility criteria were: being at least 18 years old; having an intake consultation with the GP-MHP; presenting with depressive, anxiety, or distress complaints; having not received mental health care in the past 12 months according to the GP-MHP; expecting to have at least two follow-up consultations according to the GP-MHP; having sufficient knowledge about the Dutch language and cognitive skills to fill in questionnaires; and having access to the Internet. Online study-related information was provided to interested patients such that they were able to make a well-considered decision whether to participate.

Figure 1 shows that 483 patients consented to participate and completed questionnaires within 2 weeks after the intake consultation (baseline measurement, T0). Of these, 376 patients (77.8%) completed the questionnaires at 3-month follow-up (T1). A nonresponse analysis revealed no differences between respondents and nonrespondents at T1 regarding their baseline characteristics. Our study examined effectiveness and efficiency of the care provided by GP-MHPs. Therefore, patients who were referred to (more) specialized mental health care (n = 45) or who did not receive care from the GP-MHP (n = 11) were excluded, resulting in a study population of 320 patients.

Measures

Both at T0 and T1, patients completed questionnaires on sociodemographics, anxiety and depressive symptoms, quality of life, health care consumption, and productivity losses. Furthermore, GP-MHPs completed a questionnaire about their background characteristics and the organization of their function in daily practice. Also, after every consultation with a participating patient, GP-MHPs recorded characteristics of the care provided.
Dependent variables

Change in QALYs

According to the guidelines for economic evaluations in health care provided by Care Institute Netherlands (12), the EuroQol questionnaire (EQ-5D-5L) has been used to calculate (changes in) health-related quality of life in terms of quality-adjusted life years (QALYs). The Dutch tariff for the EQ-5D-5L has been used to compute utilities (13). The change in QALYs was calculated by the area-under-the-curve (AUC) method using the utilities at T0 and T1. The change in QALYs ranged between −0.25 and 0.25 given that this is the maximum possible change in 3 months. A negative value indicated a deterioration of a patient's quality of life at 3-month follow-up, while a positive value indicated an improvement.

Costs

The commonly used and validated questionnaire Treatment Inventory of Costs in Patients with psychiatric disorders (TIC-P) (14) was used to measure the health care consumption and productivity losses for participating patients in the past 3 months, both at T0 and T1. Information about the number and type of GP-MHP consultations was recorded by GP-MHPs for each patient.

The following types of costs were distinguished: health care costs, productivity costs, and patient and family costs (e.g., transportation costs). The Dutch manual for economic evaluation in health care (12) was followed. The reference prices of the Dutch manual were combined with the information obtained from the TIC-P to determine costs. Due to the lack of available reference prices, cost prices of the GP-MHP consultations were obtained from insurance tariffs (15). Psychotropic medication costs were calculated by multiplying number of daily defined dosages (16) by the average prices (17). Absenteeism costs were defined as the days absent from work multiplied by the productivity cost of a paid worker per hour and the average working hours per day. Presenteeism costs were defined as less productive days multiplied by the productivity loss in these days, the productivity costs of a paid worker per hour, and the average daily working hours. Patient and family costs consisted of informal care and transportation costs. Informal care costs were defined as the time and associated costs a family member would be working on the unpaid work when the patient was not able to do this by themselves and was valued using the average wage of housekeeping as defined in the Dutch guideline for economic evaluations. All costs were expressed in Euros and converted to the price year 2018.

Net monetary benefit

Net monetary benefit (NMB) was calculated by subtracting the costs per patient from the benefits [(change in QALYs × willingness-to-pay (WTP) threshold) – costs]. The gain in QALYs was converted to monetary values to determine the “benefit.” In the Netherlands, the WTP for preventive interventions is often cited as €20,000 per QALY (18). Our study focused on patients with anxiety or depressive symptoms who received care from a GP-MHP. This can be considered preventive care aimed at preventing the development of full-blown mental disorders. Therefore, a gain of one QALY was set conservatively at €20,000.

Potential predictors of variation in outcomes

Characteristics of the professional and function GP-MHP

Given that several characteristics were considered, an expert panel (consisting of two GP-MHPs, one GP, one representative of a patient organization, and three researchers) selected a priori characteristics that were essential from a policy perspective to be included in analyses: having a nursing background; pursuing or having completed a GP-MHP postbachelor’s training; years of work experience as a GP-MHP; having 10 or more consultations on an average 8-hour working day; and being seconded (irrespective from which organization). Besides these variables, the following characteristics were considered by a statistical selection procedure: age; gender; years of work experience in a mental health profession; number of working hours per week as a GP-MHP; having regular consultation moments with the GP; having a short average waiting time (<2 weeks); using questionnaires always or often to support problem clarification or triage; using questionnaires always or often to monitor outcomes; having received sufficient continuing training (≥20 hours) in the previous 12 months; and having received sufficient peer consultation and/or supervision (≥6 times) in the previous 12 months.
Characteristics of the care provided

The following characteristics as recorded by the GP-MHPs were considered: number of consultations, number of homework exercises, and treatment technique(s) provided during consultations. The following treatment techniques were distinguished: cognitive behavioral therapy techniques; behavioral activation; guided self-help care to improve coping and mental health; mindfulness or relaxation exercises; and solution-oriented or problem-solving treatment. No care characteristics were selected a priori.

Potential patient-related confounders

The following baseline patient characteristics were considered: age, gender, education, living situation, working situation, ethnic origin, and severity of anxiety and depressive symptoms. The widely used and validated questionnaires Generalized Anxiety Disorder (GAD-7) and Patient Health Questionnaire on Depression (PHQ-9) were used to measure severity of anxiety and depressive symptoms, respectively (19). A priori selected characteristics included age, gender, and GAD-7 and PHQ-9 scores.

Statistical analyses

Selection of potential predictors and confounders

Additionally, to a priori selection, a statistical procedure was conducted to select potential predictors and confounders. This procedure removed variables that were redundant and unlikely to add any significant information to the final model using the Least Absolute Shrinkage and Selection Operator (LASSO). LASSO is a regression analysis that performs regularization and variable selection in which a constraint is put on the sum of the absolute values of the model parameters (20). Separate models were run for change in QALYs and NMB per patient. The LASSO models were optimized using fivefold cross-validation in which the data were split into five subsets from which one was used as the test set and the other four were used for building a model. This procedure was repeated iteratively five times to choose the best fitting model. The LASSO regressions were performed with statistical software R version 3.5.2.

Main analyses

Regression models were used to examine the associations of selected GP-MHP-related characteristics with change in QALYs and NMB, while controlling for selected patient-related confounders. Clustered standard errors at the GP-MHP level were used to control for correlation between standard errors of patients treated by the same GP-MHP. Given the relatively low number of missing values, missing data were imputed using median imputation for numerical variables and an “unknown” category was added for categorical variables. Nonparametric stratified bootstrapping (1,000 replications) was performed to calculate 95% confidence interval (CI). Analyses were performed with STATA 12.0.

Sensitivity analyses

Main analyses were repeated: (a) while excluding patients who reported at T0 to have received mental health care utilization in the previous 3 months (n = 93); (b) while excluding patients with minimal anxiety and depressive symptoms at T0 (i.e., GAD-7 and PHQ-9 scores: ≤4) (n = 38); and (c) when taking a health care perspective (i.e., exclusion of productivity losses and patient and family costs).

Results

Characteristics of study population

Table I shows that considerable variation existed among the 64 GP-MHPs regarding measured characteristics, such as working experience, number of working hours per week, and employment arrangement. The number of patients per GP-MNP was on average 5 and ranged from 1 to 15. The GP-MNPs had a mean age of 51.2 years and were predominantly female. Table II presents baseline patient characteristics. The patients were predominantly 30 years or older (73.7%), female (69.4%), married or living with a partner (66.7%), employee or entrepreneur (74.1%), and of Dutch origin (86.6%). The majority of the patients experienced mild to moderate severe anxiety (69.7%) and/or depressive (63.1%) symptoms.

Selected potential predictors and confounders

In addition to a priori selected predictors and confounders, the LASSO method selected number of working hours per week as a GP-MHP, using mindfulness and/or relaxation exercises by the GP-MHP and patient’s educational level for the model predicting change in QALYs (see supplementary table I). Work experience as a mental health care professional, using questionnaires always or often to monitor outcomes, number of homework exercises, patient’s work situation, and patient’s living situation were additionally selected for the model predicting NMB.

Change in QALYs

Patients gained on average 0.022 QALYs at 3-month follow-up (range: −0.10 to 0.22) (see Tab. IV). As shown in Table V, patients who were offered mindfulness and/or relaxation exercises demonstrated a QALY decrement compared to patients who received other treatment techniques. Other selected GP-MHP-related characteristics exerted no (borderline) significant effect. Of the selected patient-related confounders, more severe baseline anxiety symptoms were associated with a positive change in QALYs, while more severe depressive symptoms tended toward such an association.
**Net monetary benefit**

**Costs**

The mean total costs per patient were €5,220 in the 3-month period before intake consultation with the GP-MHP, and €3,864 in the 3-month follow-up period (Tab. III), resulting in a mean decrease of €1,356 per patient. This was mainly explained by decreases in mean productivity costs (€1,018) and patient and family costs (€286). Patient and family costs decreased mainly due to a decrease in unpaid work costs (€285).

**Net monetary benefit**

A positive NMB indicates that benefits were larger than the costs, and vice versa. The descriptive statistics of NMB are shown in Table IV. Table V shows that GP-MHPs with longer work experience (≥2 years) offered less efficient care than GP-MHPs with less than two years work experience. Also, the care of GP-MHPs with 10 to 20 years of work experience as a mental health care professional was less efficient compared to the care of GP-MHPs with less than 10 years of work experience. Furthermore, GP-MHPs who were seconded provided...
An exploratory study of adults with anxiety or depressive symptoms

TABLE III - Mean costs per patient during the 3 months before intake consultation and during the 3-month follow-up (€, 2018)

| Health care costs | Mean costs during 3 months before intake | Mean costs during 3-month follow-up |
|-------------------|------------------------------------------|-------------------------------------|
| **Clinical consultation** | **n = 320** | **n = 320** |
| General practitioner | 167.5 | 107.5 |
| Social worker | 14.7 | 16.6 |
| Physiotherapist | 53.1 | 57.3 |
| Psychologist | 46.2 | 68.0 |
| Outpatient clinic specialist | 42.4 | 38.2 |
| Addiction consultant | 0.0 | 0.3 |
| Occupational therapist | 20.5 | 45.9 |
| **Total clinical consultations [95% CI]** | 344.4 [311.4-387.0] | 333.9 [298.3-370.1] |
| **GP-MHP consultation** | | |
| Face-to-face consultation | | |
| Intake | | 17.4* |
| Short consult (<20 min) | | 2.9* |
| Long consult (>20 min) | | 5.7* |
| Home visit (<20 min) | | 4.3* |
| Home visit (>20 min) | | 7.1* |
| Other (call, mail, feedback, group) | | 1.5* |
| **Total GP-MHP costs [95% CI]** | 38.8 [35.2-42.5]* |
| **Other health care cost** | | |
| Day/night treatment hospital or mental health care center | 25.0 | 30.8 |
| Psychotropic medication | 41.5 | 41.8 |
| **Total other health care costs [95% CI]** | 66.5 [43.7-98.1] | 71.6 [43.0-124.6] |
| **Total health care costs [95% CI]** | 410.9 [364.9-459.6] | 442.7 [391.3-507.3]* |
| **Productivity costs** | | |
| Absenteeism | 3,277.4 | 2,795.9 |
| Presenteeism | 887.0 | 350.3 |
| **Total productivity costs [95% CI]** | 4,164.3 [3,629.3-4,767.5] | 3,146.2 [2,569.8-3,862.4] |
| **Patient and family costs** | | |
| Unpaid work | 622.1 | 337.1 |
| Transport costs | 22.3 | 21.5 |
| **Total patient and family costs [95% CI]** | 644.5 [499.3-817.3] | 358.6 [267.2-470.4] |
| **Total costs per patient [95% CI]** | 5,219.7 [4,639.1-5,925.7] | 3,863.7 [3,196.0-4,731.2]* |

CI = confidence interval; GP-MHP = general practice mental health professional.
*27 missing observations.

TABLE IV - Descriptive statistics of change in QALYs and NMB at 3-month follow-up

| Dependent variables | n | Mean | Min | Q1 | Q2 | Q3 | Max |
|---------------------|---|------|-----|----|----|----|-----|
| ΔQALY change*       | 320 | 0.022 | −0.102 | 0 | 0.018 | 0.039 | 0.219 |
| NMB†                | 293 | −3,421.02 | −80,507.46 | −3,774.26 | −518.63 | 146.09 | 3,282.59 |

Descriptive statistics of study observations.
NMB = net monetary benefit; QALY = quality-adjusted life year.
*Change in quality of life in 3 months.
†NMB in 3 months. The 27 missing observations resulted from the missing cost values.
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| Characteristics of the professional and function GP-MHP | ΔQALY change | NMB       |
|--------------------------------------------------------|--------------|-----------|
| Nursing background                                     | 0.005 (0.005)| 632.88 (857.83) |
| GP-MHP post-bachelor’s training degree (in progress/completed) | 0.005 (0.004) | -234.25 (567.60) |
| Work experience as a GP-MHP                           |              |           |
| <2 years                                               | Reference    | Reference |
| 2–4 years                                              | -0.004 (0.005) | -2037.34** (897.75) |
| 4–8 years                                              | -0.002 (0.005) | -2882.94*** (923.75) |
| ≥8 years                                               | -0.012 (0.007) | -3675.57*** (1032.16) |
| Work experience as a mental health care professional   |              |           |
| <10 years                                              | Reference    | Reference |
| 10–20 years                                            | -2580.11** (1205.17) | |
| 20–30 years                                            | -585.25 (1362.35) | |
| ≥30 years                                              | -1322.22 (1249.68) | |
| Working hours per week as a GP-MHP                     |              |           |
| <16 hours                                              | Reference    | Reference |
| 16–28 hours                                            | -0.008 (0.008) |           |
| ≥28 hours                                              | 0.001 (0.007) |           |
| Employment arrangement                                 |              |           |
| Employed by a general practice or self-employed        | Reference    | Reference |
| Employed on a secondment basis                         | 0.002 (0.004) | 1872.71** (752.16) |
| Number of consults on an average 8-hour workday        |              |           |
| <10 face to face consults                              | Reference    | Reference |
| ≥10 face to face consults                              | 0.002 (0.004) | -755.62 (653.19) |
| Using questionnaires to monitor outcomes               |              |           |
| Sometimes/rarely/never                                 | Reference    | Reference |
| Always/often                                           | -826.73 (744.97) | |
| Characteristics of the care provided                   |              |           |
| Number of homework exercises†                          | -279.35* (164.00) | |
| Other treatment                                        | Reference    |           |
| Mindfulness/relaxation exercises                       | -0.009** (0.004) | |
| Unknown†                                               | -0.009 (0.007) | |
| Baseline patient characteristics                       |              |           |
| Age                                                    | -0.000 (0.000) | -56.92* (33.27) |
| Female gender                                          | -0.001 (0.004) | 474.77 (777.95) |
| Educational level                                      |              |           |
| Low                                                    | 0.014 (0.010) |           |
| Middle                                                 | 0.006 (0.011) |           |
| High                                                   |              |           |
| Working situation                                      |              |           |
| Employee or entrepreneur                               | Reference    | Reference |
| School, housewife/man or retired                       | 3022.42*** (591.48) | |
| Disabled or unemployed                                 | 3624.13*** (574.08) | |
| Unknown‡                                               | 2138.87 (1571.35) | |
| Living situation                                       |              |           |
| Other                                                  | Reference    |           |
| Living together/married                                | -737.82 (603.36) | |
| Severity of anxiety symptoms (GAD-7)                  | 0.002** (0.001) | 192.77** (86.81) |
| Severity of depressive symptoms (PHQ-9)               | 0.001* (0.001) | -326.10*** (84.97) |
| Constant                                               | -0.011 (0.015) | 2868.15* (1460.14) |
| N                                                      | 320          | 320       |
| N-clusters                                             | 64           | 64        |
| R-squared                                              | 0.184        | 0.166     |

GAD = Generalized Anxiety Disorder; GP-MHP = general practice mental health professional; NMB = net monetary benefit; PHQ = Patient Health Questionnaire; QALY = quality-adjusted life year.

* p < 0.1. Robust standard errors in parentheses, clustered at the GP-MHP level. ** p < 0.05, *** p < 0.01.
† 27 missing observations
‡ 11 missing observations
more efficient care than GP-MHPs who were employed by a
general practice or self-employed. Finally, a higher number of
homework exercises tended to be related to a negative
NMB. Regarding the selected patient-related confounders,
older age of patients tended to be associated with a negative
NMB. Moreover, care provided to patients who were not an
employee or entrepreneur was more efficient than that offe-
red to employees and entrepreneurs. Finally, more severe
baseline depressive symptoms were negatively associated
with NMB, whereas more severe baseline anxiety symptoms
showed a positive relationship.

Sensitivity analyses

In the first sensitivity analyses, patients who reported
mental health care utilization in the 3 months before intake
consultation with the GP-MHP were excluded (n = 93). Results
showed that providing mindfulness and/or relaxation exerci-
ses was no longer negatively associated with change in QALYs
at 3-month follow-up (supplementary tables II and III). More
severe baseline anxiety and depressive symptoms remained
associated with a positive change in QALYs. A new finding
was that patients with middle or high levels of education ten-
ded to show QALY improvement compared to those with a
low educational level. Regarding the model predicting NMB,
results were largely robust. Compared to the original analysis
using the total study population, a new finding was that
the other categories of long work experience (20–30; and
≥30 years) as a mental health care professional also were/ tended
to be negatively associated with NMB, while number of
homework exercises had no longer a borderline effect.

In the second sensitivity analyses, patients with minimal
baseline anxiety and depressive symptoms were excluded
(n = 38). Regarding the model predicting change in QALYs, the
effects of offering mindfulness and/or relaxation techniques
and baseline severity of anxiety and depressive symptoms
remained. The sensitivity analysis predicting NMB also iden-
tified the same GP-MHP-related characteristics and patient-
related confounders as the original analysis using the total
study population.

When performing the NMB regression from a health care
perspective (i.e., exclusion of productivity losses and patient
and family costs), the only remaining significant predictor
was patients’ severity of anxiety symptoms at baseline (sup-
plementary table IV), which was also shown to be a strong
predictor of gain in QALYs at follow-up in the base case
analyses. Given that the difference in costs between baseline
and follow-up diminishes when taking a health care perspec-
tive, it is not surprising that results of this analysis more clo-
sely resemble the results of the QALY analysis.

Discussion

The study explored whether GP-MHP-related characteri-
istics influence short-term effectiveness (in terms of change in
QALYs) and efficiency (in terms of NMB) of the care provided
by GP-MHPs to adult patients with anxiety or depressive sym-
ptoms in Dutch general practice. First, the QALY results are
discussed, followed by the NMB results.

Receiving mindfulness and/or relaxation exercises was
associated with a QALY decrement as compared to receiving
other treatment techniques. This may indicate that mindful-
ness and/or relaxation techniques were offered relatively
frequently to more complex patients who are less likely to
recover within 3 months, or that these techniques are rela-
tively less effective in the short term. Regarding patient-
related characteristics, having more severe anxiety and/or
depressive symptoms at baseline was, or tended to be, asso-
ciated with a QALY improvement. These findings may reflect
that patients in a more severe baseline (mental health) state
have more room for improvement.

Having longer work experience (≥2 years) as a GP-MHP
was associated with less efficient care. Also, having longer
work experience (10-20 years) as a mental health profession-
ally was related to a negative NMB. Possibly, more complex
patients, who are less likely to recover within 3 months and
more likely to incur higher costs during this period, are per-
ceived as intrinsically challenging by more experienced GP-
MHPs, leading to the decision to treat these patients rather
than referring them to (more) specialized mental health
care. Furthermore, GPs may be less hesitant to refer more
complex patients to more experienced GP-MHPs. Indeed,
post hoc analyses revealed that the patients of GP-MHPs
with longer work experience (i.e. 2-4; 4-8; and ≥8 years)
had lower baseline utilities (resp. 0.74; 0.74; and 0.71)
and higher costs during 3-month follow-up (resp. €3,193;
€4,332; and €5,913) than the patients of GP-MHPs with lit-	le work experience (<2 years) (baseline utility: 0.78; costs:
€2,629). The finding that the number of homework exerci-
ses tended to be negatively related to NMB might also be
explained in terms of complexity of patients: it is likely that
more complicated problems require a higher number of
homework assignments.

Being seconded rather than being employed by a general
practice or being self-employed exerted a positive effect on
NMB, suggesting more efficient care. To better interpret this
finding, a post hoc analysis was performed in which type of
employment arrangement was further categorized (reference
category: employed by a general practice) (supplementary
table V). Being self-employed and being seconded from an
organization in which primary care and mental health care
organizations collaborate were associated with a positive
NMB compared to being employed by a general practice,
while being seconded from a mental health organization ten-
ded towards such a relationship. This may suggest that these
types of employment arrangement promote collaboration
and timely referral between professionals working in gene-
ral practice and mental health care. Several patient-related
confounders were related to NMB. Older age of patients ten-
ded to show a negative association, which is understandable
given that older patients encounter higher costs. Addi-
tionally, unemployed patients had a higher NMB than emplo-
yed patients, which is expected since only the latter incur
productivity losses. Finally, more severe baseline depres-
sive symptoms were associated with costs that increasingly
outweighed the benefits (based on QALY gain), whereas gre-
ater baseline anxiety symptoms were related to benefits that
increasingly outweighed the costs.
Sensitivity analyses excluding patients with minimal baseline anxiety and depressive symptoms showed similar results. Also, when excluding patients who reported mental health care utilization in the 3 months before intake consultation with the GP-MHP (n = 93), most of the identified predictors remained (borderline) significant (except for the negative effect of receiving mindfulness and/or relaxation exercises on QALYs). This suggests that results are largely robust to these changes in study population.

Study strengths include the prospective design, the use of established patient questionnaires, and the wide range of potential GP-MHP-related characteristics and patient-related confounders considered. Yet, some limitations merit discussion. First, given the exploratory nature of the study without a control condition, no causal inferences can be drawn. Second, the GP-MHPs may be unrepresentative of the population. However, they were comparable to members of the LV POH-GGZ in terms of age, gender, and work experience. Third, it is possible that patients in a better mental health state were more likely to participate since other patients may have preferred to focus solely on recovery, leading to a study population in which more severe patients were underrepresented. Fourth, almost 30% of the patients reported recent use of mental health care at baseline. This exclusion criterion could have been overlooked by a GP-MHP, or a patient did not report this to the GP-MHP when invited for participation. Fifth, the registration of GP-MHPs about the characteristics of the care provided to participating patients may be incomplete. Sixth, the sensitivity of the EQ-5D-5L to detect changes could be questioned given its generic character and ceiling effects demonstrated in other studies (21,22). Seventh, the WTP for one QALY was set relatively low (equal to the WTP for preventive interventions). Possibly, the disease burden associated with early stages of depressive and anxiety disorders is higher. The conservative WTP would have made it harder to detect significant positive effects on NMB. Lastly, this study focused on a short-term 3-month follow-up. It is important to study longer-term effects to see if improvements in QALYs and reductions in resource utilization are sustainable.

In conclusion, this study showed that the mean quality of life of adult patients with anxiety or depressive symptoms improved at 3 months after intake consultation with the GP-MHP. Furthermore, the mean total costs per patient during the 3-month follow-up period decreased compared to the 3 months before intake, resulting largely from an increase in productivity. These findings seem to imply that the care provided by GP-MHPs contributes to improving patients’ functioning. Some GP-MHP-related characteristics appear to influence short-term effectiveness and efficiency of the care provided. Further research is needed to confirm and better explain these findings and to examine longer-term effects.

Disclosures

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