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Telephone coaching for the prevention of depression in farmers? Results from a pragmatic randomized controlled trial

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Abstract

Introduction: Farmers have a high risk for depression (MDD). Preventive measures targeting this often remotely living population might reduce depression burden. The study aimed to evaluate the effectiveness of personalized telephone coaching in reducing depressive symptom severity and preventing MDD in farmers compared to enhanced treatment as usual (TAU+).

Methods: In a two-armed, pragmatic randomized controlled trial (N=314) with post-treatment at 6-months, farming entrepreneurs, collaborating family members and pensioners with elevated depressive symptoms (PHQ-9 \geq 5) were randomized to personalized telephone coaching or TAU+. The coaching was provided by psychologists and consists on average of 13 (\pm 7) sessions à 48 minutes (\pm 15) over 6 months. Primary outcome was depressive symptom severity (QIDS-SR16).

Results: Coaching participants showed a significantly greater reduction in depressive symptom severity compared to TAU+ (d=0.39). Whereas reliable symptom deterioration was significantly lower in the intervention group compared to TAU+, no significant group differences were found for reliable improvement and in depression onset. Further significant effects in favor of the intervention group were found for stress (d=0.34), anxiety (d=0.30), somatic symptoms (d=0.39), burnout risk (d=0.24-0.40), and quality of life (d=0.28).

Discussion: Limiting, we did not apply an upper cut-off score for depressive symptom severity or controlled for previous MDD episodes, leaving open whether the coaching was recurrence/relapse prevention or early treatment. Nevertheless, personalized telephone coaching can effectively improved mental health in farmers. It could play an important role in intervening at an early stage of mental health problems and reducing disease burden related to MDD.

German Clinical Trial Registration: DRKS00015655.

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Introduction

Lifetime prevalence rates for major depressive disorder (MDD) are estimated between 2% and 21.0% worldwide (1). MDD is associated with high individual (2,3) and societal burden (4,5). Yet, primary care providers fail to recognize MDD in nearly half of patients (6) and only 20% receive specialized mental health care (7). But even in a hypothetical scenario of full coverage and compliance to evidence-based treatments only one-third of MDD-related disease burden could be averted (8,9). Preventive approaches are promising in reducing disease burden. According to recent meta-analyses, psychological interventions could effectively prevent MDD onset when targeting people in risk groups or with subthreshold symptoms (10,11).

A recent systematic review including primarily studies from English-speaking countries showed an elevated risk in farmers for mental disorders compared to people in non-farming occupations (12). Farming-related risk factors include poor physical health, high workload, exposure to pesticides, financial hardship, and uncertain weather conditions. Farmers also face barriers accessing mental health services including few providers in rural areas (12,13), preferring help from oneself, family or friends (14), and anticipated stigma (15,16).

Therefore, low-threshold preventive interventions for this vulnerable group are warranted. Telephone coaching could aid by reducing travel time and being easily accessible. One-on-one telephone interventions have been shown to be effective in supporting people with physical long-term conditions (17) and in delivering psychological interventions for depression (e.g., cognitive behavioral therapy, interpersonal psychotherapy) (18). In a recent meta-analysis, cognitive behavioral therapy delivered over phone has shown comparable outcome improvements compared to face-to-face therapy for MDD (19,20). However, for coaching conducted over telephone, only two studies could be identified that evaluated the effectiveness in reducing depressive symptom severity and revealed moderate effects in mostly white collar workers (21,22). Yet the overall effectiveness of telephone coaching in farmers as well as its effect on preventing MDD remains unclear.

The present study evaluated the effectiveness of telephone coaching personalized to the individual farmer's needs compared to enhanced treatment as usual in reducing depressive symptom severity and preventing MDD onset at 6-month follow-up. This study is part of a nationwide prevention project by the German social insurance for farmers, foresters, and gardeners (SVLFG) which aims to implement internet- and tele-based interventions into routine care.

Methods

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The study was a two-armed pragmatic randomized controlled trial comparing the effectiveness of personalized telephone coaching delivered by a third party independent healthcare provider “IVPNetworks” to a control group receiving information material in addition to usual care (TAU+) at post-treatment (6 months after randomization).

The trial was approved by the Medical Ethics Committee of the Friedrich-Alexander University Erlangen-Nürnberg (No. 345_18 B) and registered in the German clinical trial register (DRKS00015655). The study protocol can be found elsewhere (23).

Study population

Individuals were included if they were (a) insured by the SVLFG, (b) entrepreneur, assisting family member or pensioned farmer, (c) 18 years or older, (d) showed elevated depressive symptoms (PHQ-9 \geq 5), (e) had internet/telephone access for online assessments/coaching, and (f) provided written informed consent.

Applicants were excluded if they were (a) currently receiving psychotherapy, (b) unwilling to sign a non-suicide contract in case of suicidal ideation or (c) living in the German Federal States Bavaria or Schleswig-Holstein, as roll-out of the intervention into routine care was ongoing there (24). Due to the parallel recruitment for two RCTs evaluating online-trainings in the same target group (25,26), we (d) excluded participants of these studies. To mimic routine care, no diagnostic interviews were conducted.

Procedure

Participants were recruited and enrolled in the study from December 2018 to April 2019. Main recruitment channel were personal invitation letters to randomly selected insured persons. The study was also advertised in the SVLFG members’ journal and newsletter and associated websites.

Inclusion criteria were assessed online and eligible individuals who provided written informed consent and completed the baseline assessment were randomly allocated to the intervention (IG) or control group (CG) (see Figure 1).

Randomization was centrally done at an individual level by an independent researcher not involved in the study. Permuted block randomization with randomly arranged block sizes (4, 6, 8, 12) and an allocation ratio of 1:1 was used based on a web-based program (Sealed Envelope). Study participants and coaches could not be blinded but data collectors were blind to group allocation.

Post-assessment was assessed six month after randomization, regardless of the coaching duration, between June 2019-December 2019. Completion was rewarded with €15 in both groups. The primary

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outcome was assessed via telephone if participants did not complete the assessment within two months.

Study arms

All participants had unrestricted access to routine care. Actual health service use was monitored with items of the TiC-P (see secondary outcomes) (27,28).

Intervention group

The study team registered participants on the management platform (IVPnet). Case managers at IVPNetworks assigned coaches to participants. Coaches were psychologists with a diploma or master's degree in psychology and trained in different psychological methods (e.g., cognitive behavioral, systemic, hypnotherapeutic) while licensed psychotherapists were available for supervision. The coaching is an individual-centered process, which is problem-based and solution-oriented. It aims to reactivate and build individuals' resources by using psychoeducational and psychological methods to enable participants to cope with stress, acute problems or general worries.

No fixed procedures or standardized manuals were applied in the coaching. Coaching methods varied depending on the coach's background, while timing and content were permanently adapted to the participants' needs. As a guideline, a coaching volume of 850 minutes or six months was set with the possibility of prolonging for additional 150 minutes or three months, respectively. If coaches identified a clinically relevant symptomatology, they could support participants in finding adequate help (e.g. contact general practitioner or psychiatric clinic). Additionally, participants were supported to find on-site support services (e.g. socioeconomic or agricultural family counseling) or switch to an onsite-coaching if indicated.

Control group

Participants in the control group received brief psychoeducation material on stress and depression by email, combined with information about access to regular care.

Outcomes

Primary and secondary outcomes were assessed via online-questionnaires (Unipark) at baseline and post-treatment (T1).

Primary Outcome

Depressive symptom severity was assessed with the German Version of the Quick Inventory Depressive Symptomatology (QIDS-SR16) with scores ranging from 0 to 27. Scores between 0-5,

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indicate normal health status, while those between 6-10, 11-15, 16-20 and greater than 20, indicate mild, moderate, severe or very severe depressive symptom severity, respectively (29). Reliability in this study was acceptable (30) with $\alpha_{T0}=.72$ and $\alpha_{T1}=.78$.

Secondary Outcomes

Lifetime history and major depressive episodes (MDE) onset within the past year, bipolar disorder (BPD), and general anxiety disorder (GAD) were self-reported with adapted items from the web version of the Composite International Diagnosis Interview version 3.0 (CIDI, 31). For depression onset at post-treatment, both CIDI rating and a score of 13 or greater on the QIDS-SR16 as cut-off for possible acute cases of clinical depression (32) were applied.

Secondary outcomes further included perceived stress (Perceived Stress Scale, PSS, range 0-40, $\alpha_{T0}=.85$ - $\alpha_{T1}=.90$) (33), insomnia severity (Insomnia Severity Index, ISI, range 0-28, $\alpha_{T0}=.81$ - $\alpha_{T1}=.88$) (34), somatic symptom burden (Somatic Symptom Scale, SSS-8, range 0-32, $\alpha_{T0}=.71$ - $\alpha_{T1}=.76$) (35), severity of GAD (GAD-7, range 0-21, $\alpha_{T0}=.78$ - $\alpha_{T1}=.83$) (36,37), severity of panic and agoraphobic symptoms (Panic and Agoraphobia Scale, PAS, , range 0-48, $\alpha_{T0}=.89$ - $\alpha_{T0}=.92$) (38), alcohol consumption (consumption questions from Alcohol Use Disorder Identification Test , AUDIT-C, range 0-12, $\alpha_{T0/1}=.59$) (39) and quality of life (Assessment of Quality of Life-8D, AQoL-8D, range 0-100, $\alpha_{T0}=.92$; $\alpha_{T1}=.94$) (40).

Work-related, the subjective capacity to work (SPE, Guttman scale categories 0-3, $\text{rep}_{T0/1}=.95$) (41) as well as burnout symptomology (Maslach Burnout Inventory, MBI-GS, subscales: "Emotional Exhaustion" , EE, range 0-30; "Cynicism", CY, range 0-30; "Professional Efficacy", PE, range 0-36; $\alpha_{T0}=.70$ - $.89$, $\alpha_{T1}=.77$ - $.91$) (42,43) was assessed.

A context-adapted version of the cost questionnaire "Trimbos Institute and Institute of Medical Technology Questionnaire for Costs Associated with Psychiatric Illness" (TiC-P) (27,28) was used to monitor TAU.

Intervention-related Outcomes

Intervention-related outcomes included satisfaction with the coaching or information material (Client Satisfaction Questionnaire for internet interventions , CSQ-I, range 8-32, $\alpha_{CG}=.95$ - $\alpha_{IG}=.96$) (44-46), working alliance (Working Alliance Inventory, participants: WAI-SR, range 12-60, $\alpha=.93$; coaches: WAI-SRT, range 10-50, $\alpha=.90$) (47), and negative effects (Inventory for the Assessment of Negative Effects of Psychotherapy, INEP) (48).

Data on the coaching process (e.g. duration, sessions, topics) were retrieved from IVPnet.

Data Analyses

Based on a power of 80%, an alpha of 0.05 (two-sided), and an attrition rate of 20% (21,22), 312 participants were needed to be able to detect an effect of $d=0.35$ (49) using an independent t-test (G*Power Version 3.1.9.2).

Results are reported according to the Consolidated Standards of Reporting Trials (CONSORT) 2010 Statement and its extension for reporting pragmatic trials (50). Analyses were performed in R (51) based on intention-to-treat principles with a two-sided significance level of .05. Missing data were imputed using the R-package MICE (52) to apply Multiple Imputation by Chained Equations assuming data to be missing at random. Representing the percentage of incomplete cases at post-treatment, 21 imputed datasets were generated (53). Intervention-related outcomes and health service use were not imputed. We used analysis of covariance (ANCOVA) to compare primary and secondary outcomes between study groups, adjusting for baseline scores. All analyses were run in each imputed data set and estimates were pooled using Rubin's Rule (54,55). Results were reported as mean within- and between-group differences and as Cohen's d effect sizes with corresponding 95%-CIs according to Hedges and Olkin (56).

Treatment response, reliable deterioration & close-to-symptom-free status

To assess improvements in the primary outcome at an individual level, we examined the number of participants who showed a treatment response as defined by a reliable change from baseline to post-treatment according to the reliable change index (RCI) of Jacobson and Truax (57). Participants were defined as reliably improved if their QIDS-SR16 score declined from baseline to post-treatment with more than 1.96 standard units corresponding to a point change of at least 6, while taking into account the reliability of the measurement instrument. The same method was used to assess an increase in depressive symptoms to indicate reliable deterioration.

Close-to-symptom-free status was a priori defined as a score of ≤ 5 on the QIDS-SR16 (29). Individuals below this score at baseline were excluded from this analysis.

Differences in treatment response and close-to-symptom-free status between study groups were assessed using χ^2 tests. Numbers-needed-to-treat (NNT; with 95%-CI) to achieve one treatment response and close-to-symptom-free status, respectively, were calculated as the inverse of the risk difference (58,59).

Onset and remission of potential MDD

Group differences in depression onset were assessed with Poisson regression in the subsamples of individuals without self-reported MDE/MDD at baseline based on CIDI and QIDS-SR16<13, respectively, estimating incidence rate ratios (IRR) with 95%-CIs. For individuals with potential MDD at baseline (QIDS-SR16≥13) group differences in remission were assessed using logistic regression. Odds Ratios (OR) and 95%-CIs were reported.

Sensitivity analyses

To test the robustness of the findings, subgroup analyses were conducted with study completers. The influence of intervention (e.g. coaching duration, coaches' background) and individual characteristics (e.g. treatment preferences) on the primary outcome was analyzed using linear regression.

Results

Participants

A total of 1347 individuals completed the screening. Two individuals who completed the baseline assessment after study N was reached were randomized by coin-flip, resulting in a total sample of 314 participants, with 160 participants in IG and 154 in CG. In IG, 24 participants (15.0%) and in CG 43 participants (27.9%) were lost to follow-up. Study completers and study dropouts did not differ in any sociodemographic or clinical baseline characteristics.

The majority of participants were male (n=165, 52.5%), lived in partnership (n=281, 89.5%), had middle education (n=197, 62.7%) and were entrepreneurs (n=197, 62.7%) with an average age of 52 (SD=9.98, range: 25-87). Average depressive symptom severity was mild to moderate (M=10.03, SD=4.26), with 88 participants (28.0%) scoring ≥13 on the QIDS-SR16 (Table 1).

Intervention-related outcomes

Coaches and Intervention Use

During the study, 34 coaches (n=31 female, 91.2%) worked with 1 – 20 participants (M=4.71, SD=2.26). According to IVPNetworks, coaches had a background in systemic counselling (n=18, 53.0%), cognitive behavioral methods (n=11, 32.0%), hypnotherapy (n=8, 24.0%), gestalt- or analytic therapy (n=7, 20.5%) or other coaching and counseling methods (n=19, 55.9%). Additional sociodemographic and work-related information was assessed via online questionnaire from coaches (17/34, 50%; Supplement 1). Analyses of semi-structured interviews with eight coaches revealed psychoeducation, conjoint goalsetting, and a three-phase model ("introduction and alliance building"-, "working"- and "stabilizing"-phase) as common elements for the individualized coaching. Intervention use is displayed in Table 2.

Satisfaction and working alliance

Satisfaction in IG was higher (n=135; M=28.17, SD=5.58) compared to CG (n=109; M=16.11, SD=6.46, $t(214.64)=-15.39$, $p<.001$).

Working alliance between coach and participant was rated as good by participants (n=135, 84.9%, M=4.05, SD=0.66) and by the 17 coaches who rated a total of 86/159 (54.1%) coachings (M=3.94, SD=0.68).

Primary Outcome

Both groups showed statistically significant reductions in depressive symptom severity indicated by changes in baseline to post-treatment scores on the QIDS-SR16 (IG: 3.37 points, SD=4.21, $T(3597)=-7.17$, $p<.001$, $d=-0.92$ [95%-CI: -0.67 - -1.17]; CG: 2.10 points, SD=5.01, $T(1793)=-3.86$, $p<.001$, $d=-0.50$ [95%-CI: -0.25 - -0.77]). Depressive symptom severity was statistically significantly reduced in IG compared to CG while adjusting for baseline symptoms ($F(1, 306.54) = 12.78$, $p<.001$) corresponding to a small to medium between-group effect size of Cohen's $d=-0.39$ [95%-CI: -0.15 - -0.64].

Treatment response, symptom deterioration & close-to-symptom-free status

Treatment response was observed in more participants in IG (58/160=36.3%) than in CG (44/154=28.6%) but without statistical significance ($\chi^2=2.11$, $p=.16$; NNT=13.02, 95%-CI: -38.71 – 5.57). In IG, statistically significantly more participants achieved a close-to-symptom-free status (61/140=43.6%) compared to CG (37/133=27.8%; $\chi^2=7.35$, $p=.007$; NTT=6.35, 95%-CI: 3.72 -21.70). A significant difference was observed in reliable deterioration with one case (0.6%) in IG and nine cases (5.8%) in CG ($\chi^2=6.4$, $p=.02$).

Secondary Outcomes

Onset and remission of depression

Based on CIDI (n=260), 15 cases (6.6%) of possible MDE onset were observed in CG compared to six cases (2.7%) in IG (IRR=0.39, 95%-CI: 0.14 -1.09, $p=.07$). Likewise, no group difference was observed in potential MDD cases based on QIDS-SR16 (n=226) with eight (3.5%) and four (1.8%) new cases of potential MDD in CG and IG respectively (IRR=0.36, 95%-CI: 0.10 – 1.36, $p=.13$).

No statistically significant difference between groups in remission (IG: $n_{\text{baseline}}=40$, $n_{\text{post}}=11$, 27.5% remission, CG: $n_{\text{baseline}}=48$, $n_{\text{post}}=22$, 45.8% remission; OR=1.84, 95%-CI: 0.66 – 5.42, $p=.27$) was observed.

Other mental health outcomes

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Analyses yielded significant differences in favor of IG for perceived stress ($d=-0.34$, 95%-CI: -0.08 - -0.59), generalized anxiety ($d=-0.30$, 95%-CI: -0.07 - -0.53), somatic symptoms ($d=-0.39$, 95%-CI: -0.16 - -0.63), dimensions of the Maslach burnout inventory (EE: $d=-0.28$, 95%-CI: -0.05 - -0.51; PE: $d=0.4$, 95%-CI: 0.64 - 0.16; CY: $d=-0.24$, 95%-CI: 0 - -0.47), and quality of life ($d=0.29$, 95%-CI: 0.52 - 0.06) (Table 3).

Negative Effects

Based on the INEP, one-third of IG participants (47/135, 34.8%) reported at least one negative effect attributed to the intervention. In total, 82 negative effects were reported of which most were “intrapersonal changes” ($n=33$, 40.2%, Supplement 2).

Use of TAU

Overall, more participants in IG ($n=97$, 71.3%) reported use of at least one health service (Table 4) during the last three months compared to CG participants ($n=63$, 56.8%, $\chi^2(1)=5.06$, $p=.02$).

Sensitivity analyses

Analyses of study completer ($n=247$, 78.7%) showed that outcomes remained comparable with greater effect sizes compared to the main analyses (Supplement 3). Additionally, small effects of increased reduction in insomnia ($d=-0.22$ [95%-CI: -0.47 – 0.03]) and panic and agoraphobic symptoms ($d=-0.3$ [95%-CI: -0.6 - 0.01]) were found in IG compared to CG.

Baseline depressive symptom severity and coaching duration were uncorrelated ($r=0.12$, $p=.11$) but baseline symptom severity predicted depressive symptoms at post-treatment ($\beta=0.51$, $t(111)=7.35$, $p<0.0001$, $R^2=0.29$ [95%-CI: 0.17 – 0.42]; Supplement 3).

Discussion

We reported the post-treatment results from a pragmatic randomized controlled trial comparing a personalized telephone coaching to a control group receiving brief psychoeducational material. Coaching participants showed a significantly greater reduction in depressive symptom severity ($d=-0.39$, 95%-CI: -0.64 - -0.15) compared to CG. No significant differences in reliable symptom improvement and depression onset were observed, but coaching led to fewer reliable deteriorations compared to CG. Positive effects in favor of IG were also shown for stress, anxiety, somatic symptoms, burnout risk, and quality of life.

To our knowledge, this is the first trial for a personalized preventive telephone coaching targeting depressive symptoms in farmers. The observed reduction in depressive symptoms is comparable to

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previous findings for indicated depression prevention with effect sizes reported at post-treatment as $d=0.35$ (95%-CI: -.23 to -.47) for face-to-face interventions (49), $d=-0.39$ (95%-CI: -0.25 to -0.53) for general online interventions (60), and $d=-0.28$ (95%-CI: -0.50 to -0.07) for guided online-interventions for farmers (61). The average intervention duration of 13 sessions over six months in this study is higher compared to most online trainings (6-12 sessions, 3-12 weeks) (60) but similar to preventive health coaching (1-20 sessions, 1-24 weeks) (62) and face-to-face interventions in subthreshold (5-16 session) (10) and major depression (3-24 sessions, 3-36 weeks) (63). Studies on telephone coaching based on cognitive behavioral therapy or motivational interviewing for adults with MDD reported slightly higher effect sizes for symptom reduction with $d=-0.76$ (95%-CI: -.40 to -.80) at 4-months (21) and $d=-0.45$ (95%-CI: -.14 to -.75) at 12-months (22).

Regarding the non-significant group differences in MDE onset, three potential reasons should be considered. First, overall onset rates at post-treatment were low in both groups (CG: 12.0%, IG: 4.4% based on CIDI). Onset rates for non-active control groups are reported with incidence rates of 25%-30% in (indicated) prevention over 12 months (10,60). As shown by Reins et al. (60) depression onset in subclinical control conditions occurred on average 8 months after study enrolment. Thus, our follow-up period might have been too short to observe group differences in depression onset. Second, our control group was not completely inactive but received psychoeducational material about stress, depression, and healthcare services. Yet, brief psychoeducational interventions can result in depressive symptom reduction (64). Third, the study was powered to detect statistically significant differences in depressive symptom severity, which might not have been sufficient to detect differences in MDD onset.

The recent Covid-19 pandemic has increased the demand and use of telehealth services rapidly (65–67). While the increased exposure to telehealth options might have positively influenced attitudes of practitioners and users (68,69), it also revealed that telehealth is still considered a more niche intervention option in many countries resulting in a lack of training of health care professionals and reimbursement opportunities (70–72). In line with other (pre-)pandemic studies, our results show that telephone coaching can effectively promote mental health, not only as a necessity in a global health crisis but also in easing access for remotely living communities (73), lowering socio-economic costs (74,75) and offering alternatives for people with restricted (broadband) internet-access (75–77). Implementing a structure for telehealth in routine care can further strengthen and enable the health care system to spontaneously and flexibly react to future large scale health crisis (67,71,72).

Limitations

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We neither applied a cut-off on self-reported depression nor conducted diagnostic interviews at baseline in order to mimic routine care. Thus, around a third of included individuals were potential MDD cases and about a quarter of participants reported lifetime MDE. The telephone coaching might therefore have functioned as recurrence/relapse prevention or (early) treatment. Future studies should clarify whether telephone coaching is equally effective in the prevention of first depression onset, prevention of recurrence /relapse and early treatment, respectively.

Although we evaluated the coaching as a depression prevention intervention and included participants with at least mild depressive symptoms, we did not exclude participants with comorbid symptoms. Due to the personalized approach, coaches and participants might have agreed to focus on other symptoms. This might partly explain why only 36% (n=113) of participants showed a treatment response, a finding similar to other studies on online indicated prevention (60) and preventive face-to-face interventions (49). Treatment response might be especially critical for this target group in order to avoid an even greater reluctance to seek professional help (78). Non-response can lead to (early) dropout (79). However, early termination of telephone coaching was low in this study (n=17/160, 10.6%), which might be due to the low-threshold telephone delivery (80) or because of the personalized approach.

Nevertheless, the highly personalized intervention and diverse coaches' backgrounds restrict generalizability of the intervention effects. More research on preventive (telephone) coaching on mental health outcomes is needed, especially to determine effective methods and effects of personalization (81).

Finally, the assumed advantage of telephone coaching making health care more accessible might have been limited due to study specific inclusion criteria (e.g. internet access). The multi-stage inclusion procedure for study participation might have resulted in inclusion of highly motivated participants.

Conclusion

Personalized telephone coaching can effectively reduce depression symptoms and improve mental health in farmers. It could play an important role in intervening at an early stage of mental health problems and if needed facilitating access to further support (e.g. psychotherapy, farming specific offers) which is especially crucial in rural areas and populations with low-help seeking behavior. Long-term (cost)-effectiveness analyses and the evaluation of the implementation into routine care will gain more insight into the potential of telephone coaching in this population.

Declaration of Authorship contribution according to CRediT

Janika Thielecke: Conceptualization, Methodology, Project administration, Investigation, Data Curation, Formal analysis, Visualization, Writing - Original Draft; Claudia Buntrock: Supervision, Conceptualization, Methodology, Writing - Original Draft; Ingrid Titzler: Project administration, Conceptualization, Methodology, Writing - Review & Editing; Lina Braun: Resources, Writing - Review & Editing; Johanna Freund: Resources, Writing - Review & Editing; Harald Baumeister: Resources, Conceptualization, Funding acquisition, Writing - Review & Editing; Matthias Berking: Funding acquisition, Writing - Review & Editing; David Daniel Ebert: Funding acquisition, Conceptualization, Methodology, Writing - Review & Editing. All authors provided critical revision of the article and approved the final manuscript.

Declaration of Conflict of Interest

DDE has served as a consultant to/on the scientific advisory boards of Sanofi, Novartis, Minddistrict, Lantern, Schoen Kliniken, Ideamed, and German health insurance companies (BARMER, Techniker Krankenkasse) and a number of federal chambers for psychotherapy. DDE and MB are stakeholders of the Institute for health training online (GET.ON/HelloBetter), which aims to implement scientific findings related to digital health interventions into routine care. MB is scientific advisor of mentalis GmbH, a provider for digital aftercare. HB reports to have received consultancy fees and fees for lectures/workshops from chambers of psychotherapists and training institutes for psychotherapists in the e-mental-health context. IT reports to have received fees for lectures/workshops in the e-mental-health context from training institutes for psychotherapists. She was research and implementation project lead of the trial site Institute for health training online (GET.ON) for the European implementation research project ImpleMentAll (11/2017 -03/2021) funded by the European Commission. The remaining authors report no conflicts of interest.

Declaration of Data availability

Access to the final pseudonomized trial dataset can be provided to fellow researchers upon request, depending on to be specified data security and data exchange regulation agreements.

Declaration of the role of funding source

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Table 1 Baseline characteristics of study population (N=314)

Name	IG (n=160)		CG (n=154)		Total	
	M	SD	M	SD	M	SD
Age	53.12	9.25	50.10	10.49	51.64	9.98
QIDS-SR16 (sum score)	9.81	4.13	10.26	4.40	10.03	4.26
QIDS-SR16 (categorical)	n	%	n	%	n	%
0-5 none	20	12.5	21	13.6	41	13.1
6-10 mild	76	47.5	61	39.6	137	43.6
11-15 moderate	45	28.1	53	34.4	98	31.2
16-20 severe	17	10.6	17	11.0	34	10.8
≥21 very severe	2	1.3	2	1.3	4	1.3
Sex						
Male	84	52.5	81	52.6	165	52.6
Female	76	47.5	73	47.4	149	47.5
Birthplace						
Germany	158	98.8	154	100.0	312	99.4
Other	2	1.3	0	0.0	2	0.6
Ethnicity						
Caucasian	158	98.8	153	99.4	311	99.0
Other	2	1.3	1	0.7	3	1.0
Relationship status						
With partnership	148	92.5	133	86.4	281	89.5
No partnership	12	7.5	21	13.6	33	10.5
Education level ^a						
Low	14	8.8	17	11.0	31	9.9
Middle	103	64.4	94	61.0	197	62.7
High	43	26.9	43	27.9	86	27.4
Employment status						
Entrepreneur	94	58.8	103	66.9	197	62.7
Entrepreneurs spouse	35	21.9	25	16.2	60	19.1
Pensioner farmer	16	10.0	13	8.4	29	9.2
Family member of entrepreneur	14	8.8	12	7.8	26	8.3
Incapacitated for work	1	0.6	1	0.7	2	0.6
Second job off the farm ^b						
No	42	85.7	33	89.2	75	87.2
Yes	7	14.3	4	10.8	11	12.8
Brutto Income ^c						
Low (<1000€)	13	13.3	11	10.4	24	11.8
Middle (1000-5000€)	45	45.9	61	57.6	106	52.0
High (>5000€)	17	17.4	10	9.4	27	13.2
Not disclosed	23	23.5	24	22.6	47	23.0
Main farm branch						
Dairy farming	34	23.1	35	24.1	69	23.6
Arable farming	27	18.4	30	20.7	57	19.5
Animal farming	33	22.5	18	12.4	51	17.5
Wine growing	19	12.9	25	17.2	44	15.1
Vegetable growing	9	6.1	11	7.6	20	6.9
Horticulture	11	7.5	7	4.8	18	6.2
Fruit growing	1	0.7	5	3.5	6	2.1
Direct marketing	3	2.0	3	2.1	6	2.1

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Other	10	6.8	11	7.6	21	7.2
Physical illness						
Yes	94	58.8	85	55.2	179	57.0
No	66	41.3	69	44.8	135	43.0
Current antidepressant medication						
No	86	83.5	78	94.0	164	88.2
Yes	17	16.5	5	6.0	22	11.8
Experience with psychotherapy						
No	129	80.6	132	85.7	261	83.1
Yes	31	19.4	22	14.3	53	16.9
CIDI - MDE						
MDE in lifetime	32	20.0	44	28.6	76	24.2
MDE in past 12 month	25	15.6	29	18.8	54	17.2
CIDI - BPD						
Broad mania in lifetime	10	6.3	24	15.6	34	10.8
Broad mania in past 12 month	8	5.0	15	9.7	23	7.3
CIDI - GAD						
Anxiety in lifetime	33	20.6	33	21.4	66	21.0
Anxiety in past 12 month	28	17.5	22	14.3	50	15.9
Search for therapy						
Not searching or waiting	152	95.0	148	96.1	300	95.5
Searching for therapy	7	4.4	6	3.9	13	4.1
On a waiting list for therapy	1	0.6	0	0.0	1	0.3
Intervention preference						
Preference for telephone coaching	72	45.0	74	48.1	146	46.5
No preference	76	47.5	69	44.8	145	46.2
Preference for information material	12	7.5	11	7.1	23	7.3

IG=Intervention group; CG=Control group; QIDS-SR16=Quick Inventory of Depressive Symptomatology; CIDI=Composite International Diagnostic Interview; MDE=Major Depressive Episode; BPD=Bipolar Disorder; GAD=Generalized Anxiety Disorder. ^alow: no formal education or lower secondary education, middle: finished upper secondary education, high: finished study or master's certificate; ^b only applied to spouses and family members of entrepreneur (n=86); ^c only applied to entrepreneurs and spouses/family members with working contract in the company (n=204).

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Table 2 Intervention use in the study period based on IVPNetworks reporting (N=160)

Name	Coaching participants (N=160)			
	M	SD	Min	Max
Session characteristics ^a				
sessions	13.43	6.02	1	32
frequency of sessions (days)	14.09	5.87	0	42.25
session duration (minutes)	48.57	14.69	1	120
duration of coaching (months inscribed)	6.14	1.99	0.36	11.11
volume of coaching (minutes)	652.52	325.76	50	1598
Coaching addition ^a	n	%		
prolonging of coaching	29	18.2		
Transfer to on-site-coaching	0	0.0		
Documented coaching topics (keywords) ^a	n	%		
workload	110	68.7		
partnership conflict	75	46.9		
distinction work - private life	56	35.0		
conflict with children	44	27.5		
health problem	43	26.9		
generation conflict	39	24.34		
Farm succession	28	17.5		
role conflict	26	16.3		
conflict with employees	22	13.8		
care of family member	18	11.3		
other	43	26.9		
Documented discharge reason	n	%		
Improved outcome (coach rating)	96	59.9		
further support recommended or installed	47	29.4		
withdrew consent	7	4.4		
lacked compliance	5	3.2		
agreed on different needs for support	3	1.9		
physically too impaired to participate	1	0.6		
Coaching not started	1	0.6		

^a data referring to n=159 participants who had at least one coaching session

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Table 3 Primary and secondary outcomes at 6 month post-treatment (N=314)

outcome	group	baseline assessment (T0)		6m post-treatment (T1)		F	p	Between-group effect size Cohen's d (95% - CI)
		M	SD	M	SD			
QIDS-SR16	IG	9.81	4.13	6.44	3.95	12.78	<.001	-0.39 (-0.64 - -0.15)
	CG	10.26	4.40	8.16	4.62			
PSS-10	IG	21.76	5.78	17.06	7.31	8.06	.01	-0.34 (-0.59 - -0.08)
	CG	21.95	6.36	19.73	8.31			
ISI	IG	10.95	4.98	7.91	5.21	3.47	.06	-0.20 (-0.44 - 0.05)
	CG	10.72	5.05	8.97	5.55			
GAD-7	IG	8.28	3.67	5.87	3.78	9.72	<.001	-0.30 (-0.53 - -0.07)
	CG	8.70	4.05	7.07	4.11			
PAS	IG	6.08	6.67	4.26	6.47	0.39	.53	-0.07 (-0.30 - 0.17)
	CG	6.65	7.10	4.67	6.18			
AUDIT-C	IG	3.04	1.77	2.89	1.77	1.28	.26	-0.07 (-0.30 - 0.15)
	CG	3.19	2.05	3.02	1.96			
SSS-8	IG	11.03	4.66	8.36	4.60	17.98	<.001	-0.39 (-0.63 - -0.16)
	CG	11.74	5.50	10.46	5.84			
MBI (EE)	IG	15.33	7.17	12.92	7.71	10.76	<.001	-0.28 (-0.51 - -0.05)
	CG	16.44	7.58	15.14	8.07			
MBY (CY)	IG	8.50	5.84	8.11	6.69	5.73	.02	-0.24 (-0.47 - 0.00)
	CG	9.41	5.86	9.72	6.68			
MBI (PE)	IG	26.69	7.19	28.33	6.56	13.96	<.001	0.40 (0.16 - 0.64)
	CG	25.12	7.58	25.34	8.00			
AQoL-8D (total)	IG	66.89	9.38	72.17	10.39	13.71	<.001	0.29 (0.06 - 0.52)
	CG	66.39	10.90	68.73	12.77			
AQoL-8D (PSD)	IG	77.67	10.34	80.67	10.45	9.06	<.001	0.25 (0.01 - 0.48)
	CG	77.67	10.81	77.9	11.77			
AQoL-8D (MSD)	IG	62.47	10.73	68.81	11.88	11.04	<.001	0.28 (0.05 - 0.51)
	CG	61.76	12.34	65.16	14.21			
SPE^a							.51	
SPE=0	IG	75	46.88	92	57.50			
SPE=1		36	22.50	32	20.00			
SPE=2		40	25.00	28	17.50			
SPE=3		9	5.63	8	5.00			
SPE=0	CG	66	42.86	76	49.35			
SPE=1		44	28.57	38	24.68			
SPE=2		33	21.43	29	18.83			
SPE=3		11	7.14	11	7.14			

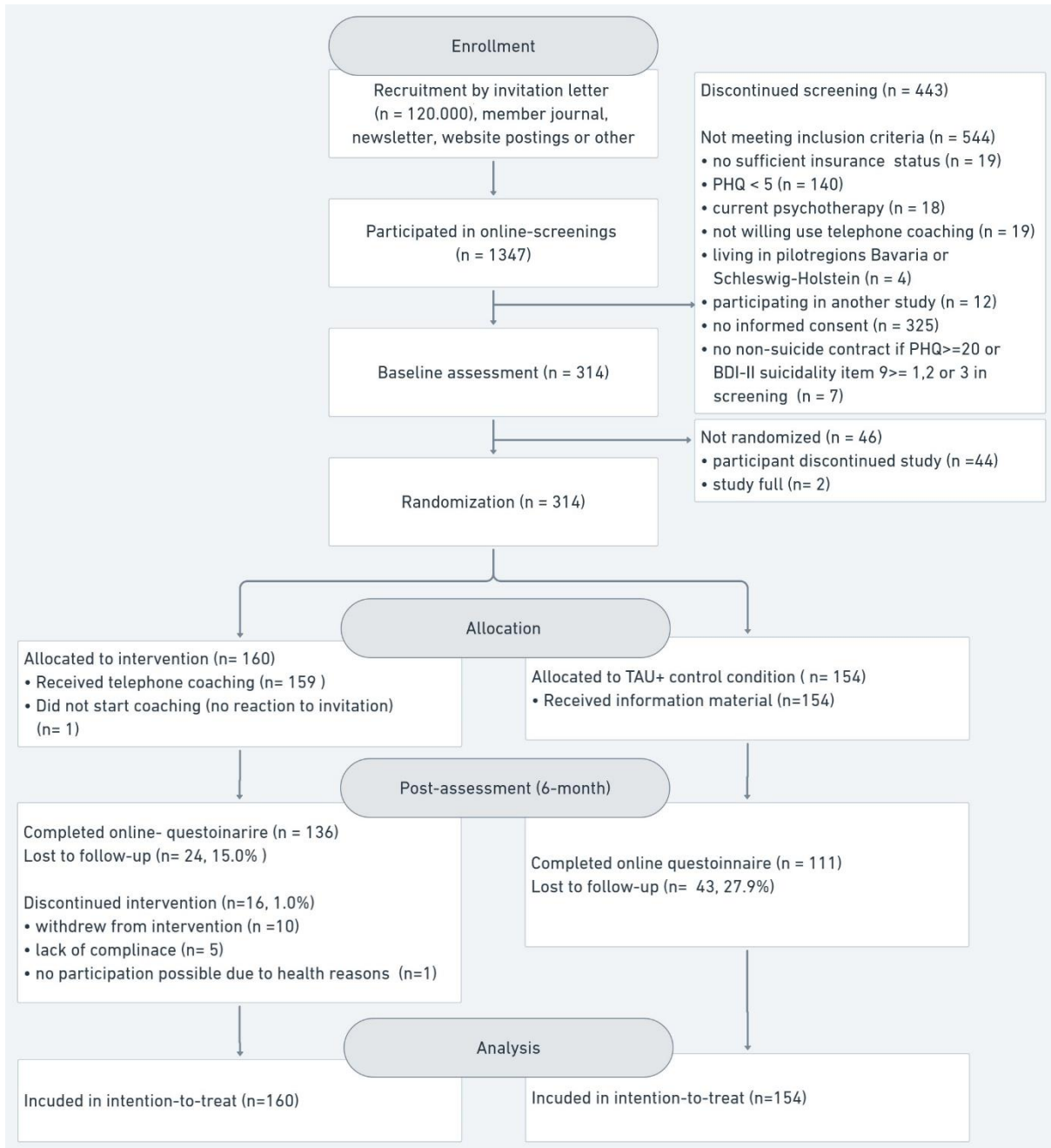
IG=Intervention group; CG=Control group; QIDS-SR16=Quick Inventory of Depressive Symptomatology; PSS-10=Perceived Stress Scale; ISI=Insomnia Severity Index; GAD-7=Generalized Anxiety Disorder; PAS=Panic and Agoraphobia Scale; AUDIT-C=Alcohol Use Disorder Identification Test – Consumption Questions; SSS-8=Somatic Symptom Scale; MBI-GS=Maslach-Burnout-Inventory General Survey; EE=Emotional Exhaustion; CY=Cynism; PE=Professional Efficacy; AQoL-8D=Assessment of Quality of Life; PSD=Physical Super Dimension; MSD=Mental Super Dimension; SPE=Subjective Prognosis of Gainful Employment Scale. Data is imputed and based on ITT analyses. ^a Reported are N and %. Tested with Fishers exact test.

Table 4 Use of psychosocial and (mental) health services in the study population according to corresponding items of Tic-P (study-completer only, n=247 at post-assessment)

Service	Group	Assessment at study begin (T0)			Assessment at post-treatment (T1)		
		n	%	Difference between groups % (95%-CI)	n	%	Difference between groups % (95%-CI)
Use of at least one health service	IG	39	24.4	2.30 (0.64 – 3.95)	97	71.3	19.72 (15.31 – 24.12)
	CG	34	22.1		63	56.8	
General practitioner	IG	111	69.4	2.05 (0.48 - 3.62)	87	64.0	12.62 (8.48 - 16.76)
	CG	110	71.4		57	51.4	
Psychotherapist	IG	4	2.5	1.85 (0.36 - 3.34)	3	2.2	0.5 (-0.38 - 1.37)
	CG	1	0.7		3	2.7	
Specialist for psychiatry, neurology or psychosomatic medicine	IG	9	5.6	3.03 (1.13 - 4.93)	5	3.7	0.83 (-0.30 - 1.96)
	CG	4	2.6		5	4.5	
Clinic for psychiatry/psychosomatic	IG	1	0.6	0.63 (-0.25 - 1.51)	2	1.5	2.13 (0.33 - 3.93)
	CG	0	0.0		4	3.6	
Prescribed antidepressants	IG	17	10.6	7.38 (4.49 - 10.27)	13	9.6	5.96 (3.00 - 8.91)
	CG	5	3.3		4	3.6	
SVLFG psychosocial health services	IG	2	1.3	2.65 (0.87 - 4.42)	3	2.2	4.1 (1.63 - 6.57)
	CG	6	4.0		7	6.3	
Other psychosocial health services	IG	13	8.1	2.91 (0.81 - 5.01)	8	5.9	5.83 (2.91 - 8.75)
	CG	17	11.0		13	11.7	

IG=Intervention group; CG=Control group; TIC-P=Treatment Inventory of Costs in Patients with psychiatric disorders; SVLFG=social insurance for farmers, foresters, and gardeners. Based on study completer answers (T0: $N_{IG}=160$, $N_{CG}=154$; T1: $N_{IG}=136$, $N_{CG}=111$).

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Caption: Figure 1 CONSORT study flow

Supplement 1: Additional information on participating coaches*Table 1 Sociodemographic and occupational information of participating coaches (self-report, n=17)*

Variable		M	SD	Min	Max	n	%
Age		47.87	9.66	30	64		
Gender	Female					15	88.2
	Male					2	11.8
Country of birth	Germany					16	94.1
	Russia					1	5.9
State	Hamburg					12	70.6
	North Rhine-Westphalia					2	11.8
	Schleswig-Holstein					2	11.8
	Bavaria					1	5.9
Subject of degree^a	Psychology					17	100.0
	Education science					1	5.9
State-licenced psychotherapist	No					12	70.6
	Yes					3	17.6
	In training					2	11.8
Description of the trainings^a	Systemic therapy					6	35.3
	Hypnotherapy					5	29.4
	Conflict Counselling/ Moderation					4	23.5
	Supervision					4	23.5
	Psychodynamic therapy					4	23.5
	Traumatherapy/-counselling					3	17.7
	Gestalt therapy					3	17.7
	Behavioral therapy					3	17.7
	Educational guidance					2	11.8
	Other coaching or counseling training					5	29.5
Duration of the trainings^a	Indicated in hours	622.36	942.28	40	3500		
	Indicated in years	2.75	0.83	2	4		
Type of employment	Permanent employee					12	70.6
	Freelancer					5	29.4
Clinical experience	0-6 months					1	5.9
	12-24 months					2	11.8
	5-6 years					2	11.8
	7-8 years					3	17.6
	8-9 years					1	5.9
	9-10 years					1	5.9
	More than 10 years					7	41.2
Coaching experience at study begin	0-6 months					4	23.5
	6-12 months					1	5.9
	12-24 months					1	5.9
	2-3 years					1	5.9
	3-4 years					2	11.8
	5-6 years					1	5.9
	6-7 years					2	11.8
	9-10 years					1	5.9
	More than 10 years					4	23.5

^a multiple answers possible

Supplement 2: Negative effects of the personalized telephone coaching*Table 1 Negative effects of the intervention reported by participants (n=135) in the INEP*

Item	N	%
Intrapersonal change	33	23.9
Longer periods of feeling bad	13	9.6
Depending on coach	9	6.7
Severity of suffering from past experiences/events	5	3.7
Neglect of hobbies and social contacts because of coaching	5	3.7
Worsening of symptoms	2	1.5
Experiencing new thinking and behavior patterns as harmful	2	1.5
Difficulties to make decisions alone	2	1.5
Less trusting others	1	0.7
Feeling more lonely	0	0.0
As a human being changed to the negative	0	0.0
Thoughts/plans to commit suicide for the first time	0	0.0
Relationship	13	9.6
Problem with partner's jealousy	10	7.4
More arguments/conflicts in relationship	5	3.7
Stigma	11	8.1
Financial worries	10	7.4
Worries about (potentially) increasing insurance fees	2	1.5
Fear of others discovering about the program usage	2	1.5
Therapeutic malpractice of the coach	10	7.4
Feeling of being forced to do exercises given by coach	8	5.9
Hurtful statements by coach	3	2.2
Feeling of data security not being ensured during the coaching	1	0.7
Feeling of being made fun of by the coach	0	0.0
Friends and Family	2	1.5
Worsened relationship with family	2	1.5
Worsened relationship with friends	0	0.0

INEP=Inventory for Assessing Negative Effects of Psychotherapy. Data based on n=135 study completer. Only negative effects attributed directly to the intervention are reported.

Supplement 3: Sensitivity Analyses*Table 1 Primary and secondary outcomes at post-treatment (study completer only, n= 168)*

Outcome	Group	n	Baseline assessment (T0)		6m post-treatment (T1)		F	p	Between-group effect size Cohen's d (95%-CI)
			M	SD	M	SD			
QIDS-SR16	IG	85	9.11	3.74	5.71	3.17	34.47	<0.001	-0.74 (-1.02 - -0.45)
	CG	83	10.19	4.26	8.71	4.35			
PSS-10	IG	85	21.69	5.46	16.98	6.50	12.2	<0.001	-0.44 (-0.73 - -0.14)
	CG	83	21.70	6.20	20.23	7.97			
ISI	IG	85	10.27	4.77	8.05	5.20	4.28	0.04	-0.24 (-0.54 - 0.06)
	CG	83	10.89	5.64	9.30	5.36			
GAD-7	IG	85	8.15	3.38	6.02	3.44	8.49	<0.001	-0.37 (-0.67 - -0.07)
	CG	83	8.92	4.24	7.41	3.96			
PAS	IG	85	5.18	5.21	3.19	4.91	5.46	0.02	-0.3 (-0.6 - 0.01)
	CG	83	6.96	7.55	4.84	6.16			
AUDIT-C	IG	85	3.01	1.59	2.86	1.53	0.62	0.43	0.07 (-0.23 - 0.37)
	CG	83	2.87	1.83	2.75	1.74			
SSS-8	IG	85	10.45	4.23	8.04	4.13	26.34	<0.001	-0.58 (-0.87 - -0.29)
	CG	83	12.24	5.76	10.94	5.46			
MBI (EE)	IG	85	14.81	6.49	12.34	7.14	21.74	<0.001	-0.48 (-0.78 - -0.19)
	CG	83	16.46	7.39	15.95	7.47			
MBY (CY)	IG	85	8.36	5.55	7.84	6.08	9.03	<0.001	-0.36 (-0.66 - -0.06)
	CG	83	9.45	6.08	10.22	6.98			
MBI (PE)	IG	85	27.86	5.59	27.92	6.67	8.48	<0.001	0.35 (0.05 - 0.65)
	CG	83	24.17	7.96	25.30	7.95			
AQoL-8D (total)	IG	85	67.64	7.59	72.99	7.86	33.41	<0.001	0.51 (0.22 - 0.81)
	CG	83	65.70	11.71	67.50	12.39			
AQoL-8D (PSD)	IG	85	78.45	8.78	81.61	9.54	27.79	<0.001	0.45 (0.15 - 0.74)
	CG	83	76.37	11.38	76.61	12.09			
AQoL-8D (MSD)	IG	85	63.21	9.12	69.46	9.21	23.85	<0.001	0.48 (0.18 - 0.77)
	CG	83	61.33	13.19	63.76	13.76			
SPE^a									
SPE=0			40	47.1	52	61.2			
SPE=1			21	24.7	15	17.7			
SPE=2			21	24.7	17	20.0			
SPE=3			3	3.5	1	1.2	1.0		
SPE=0			32	38.6	36	43.4			
SPE=1			22	26.5	18	21.7			
SPE=2			22	26.5	20	24.1			
SPE=3			7	8.4	9	10.8			

Data is based on study completer (n=168). IG=Intervention group; CG=Control group; QIDS-SR16=Quick Inventory of Depressive Symptomatology; PSS-10=Perceived Stress Scale; ISI=Insomnia Severity Index; GAD-7=Generalized Anxiety Disorder; PAS=Panic and Agoraphobia Scale; AUDIT-C=Alcohol Use Disorder Identification Test – Consumption Questions; SSS-8=Somatic Symptom Scale; MBI-GS=Maslach-Burnout-Inventory General Survey; EE=Emotional Exhaustion; CY=Cynism; PE=Professional Efficacy; AQoL-8D=Assessment of Quality of Life; PSD=Physical Super Dimension; MSD=Mental Super Dimension; SPE=Subjective Prognosis of Gainful Employment Scale. ^a

Reported are N and %. Tested with Fishers exact test.

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Table 2 Linear regression models to assess influence of intervention characteristics on primary outcome (QIDS-SR16) in IG (n=160)

Model	Term	β	SE	t	df	p	Nagelkerk R ²		
							R ²	lower 95%-CI	upper 95%-CI
Model 1: symptom severity baseline	Intercept	1.40	0.73	1.92	125.39	0.06	0.29	0.17	0.42
	QIDS-SR16 (T0)	0.51	0.07	7.35	110.99	<.001			
Model 2: symptom severity baseline + coaching durations in hours	Intercept	4.10	1.75	2.34	77.03	0.02	0.31	0.19	0.44
	QIDS-SR16 (T0)	0.24	0.19	1.28	48.19	0.21			
	Duration (h)	-0.25	0.14	-1.80	98.70	0.08			
	QIDS-SR16 (T0) * duration (h)	0.02	0.01	1.69	62.38	0.10			
Model 3: symptom severity baseline + months accompanied by coach	Intercept	3.37	2.58	1.30	82.96	0.20	0.31	0.19	0.43
	QIDS-SR16 (T0)	0.25	0.27	0.95	51.40	0.34			
	duration (month)	-0.32	0.40	-0.81	98.39	0.42			
	QIDS-SR16 (T0) * duration (month)	0.04	0.04	1.07	62.36	0.29			
Model 4: symptom severity baseline + session count	Intercept	3.70	2.11	1.76	66.30	0.08	0.31	0.19	0.43
	QIDS-SR16 (T0)	0.26	0.23	1.16	43.06	0.25			
	Session count	-0.17	0.14	-1.22	80.05	0.22			
	QIDS-SR16 (T0) * session count	0.02	0.01	1.25	52.23	0.22			
Model 5: symptom severity baseline + mean frequency of sessions	Intercept	0.91	2.31	0.40	110.80	0.69	0.30	0.18	0.43
	QIDS-SR16 (T0)	0.57	0.22	2.57	102.59	0.01			
	Frequency	0.03	0.15	0.19	111.76	0.85			
	QIDS-SR16 (T0) * frequency	0.00	0.02	-0.23	90.42	0.82			

IG=Intervention group; QIDS-SR16=Quick Inventory of Depressive Symptomology; T0=baseline measurement. Reported are regression analyses based on intervention group data (ITT analyses, n=160).

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Table 3 Linear regression models to assess influence of coaches background on primary outcome (QIDS-SR16) in IG (n = 160)

Model	Term	β	SE	t	df	p	Nagelkerk R ²		
							R ²	lower 95%-CI	upper 95%-CI
Model 1: symptom severity baseline	Intercept	1.40	0.73	1.92	125.39	0.06	0.29	0.17	0.42
	QIDS-SR16 (T0)	0.51	0.07	7.35	110.99	<.001			
Model 2: symptom severity baseline + cognitive-behavioral-trained	Intercept	1.64	0.90	1.83	109.18	0.07	0.29	0.17	0.42
	QIDS-SR16 (T0)	0.49	0.09	5.69	99.59	0.00			
	cognitive-behavioral-trained	-0.82	1.55	-0.53	136.16	0.60			
	QIDS-SR16 (T0) * cognitive-behavioral-trained	0.09	0.15	0.59	129.34	0.55			
Model 3: symptom severity baseline + systemic trained coach	Intercept	0.85	0.93	0.92	133.85	0.36	0.30	0.17	0.42
	QIDS-SR16 (T0)	0.56	0.08	6.62	129.41	0.00			
	Systemic-trained	1.37	1.54	0.89	110.42	0.37			
	QIDS-SR16 (T0) * systemic-trained	-0.12	0.15	-0.78	89.04	0.43			

QIDS-SR16=Quick Inventory of Depressive Symptomology; T0=baseline measurement. Reported are regression analyses based on intervention group data (ITT analyses, n=160)). Reference category is "other coaching or counselling training.

Table 4 Overview over number of participants treated by coach with specific therapeutic background (n = 160)

Coach trained in ...	Participants treated	
	N	%
Syctemic counselling	74	46.3
Cognitive behavioral therapy	51	31.88
not specified coaching and counselling methods	29	18.13
Hypnotherapy	28	17.5
Analytic therapy	16	10.0
Gestalttherapy	12	7.5
Not specified additional methods	58	36.3

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Table 5 Linear regression models to assess influence of participant characteristic on primary outcome (QIDS-SR16) (N = 314)

Model	Term	β	SE	t	df	p	Nagelkerk R ²		
							R ²	lower 95%-CI	upper 95%-CI
Model 1: group	Intercept	8.16	0.39	21.02	160.82	<.001	0.04	0.01	0.1
	Group: IG	-1.72	0.54	-3.18	166	.001			
Model 2: group + treatment preference^a	Intercept	7.96	0.58	13.81	169.72	<.001	0.05	0.01	0.11
	Group: IG	-1.73	0.78	-2.22	193.21	0.03			
	Preference for telephone coaching	0.25	0.79	0.32	182.73	0.75			
	Preference for information material	1.21	1.51	0.8	207.89	0.42			
	Group: IG * Preference for telephone coaching	-0.02	1.07	-0.02	226.81	0.98			
	Group: IG * Preference for information material	0.33	2.06	0.16	227.19	0.87			
Model 3: group + psychotherapy experience^b	Intercept	7.91	0.42	18.8	149.38	<.001	0.06	0.02	0.13
	Group: IG	-1.77	0.58	-3.07	190.09	<.001			
	Experience with psychotherapy	1.8	1.14	1.58	127.66	0.12			
	Group: IG * Experience with psychotherapy	-0.22	1.43	-0.15	179.76	0.88			

QIDS-SR16=Quick Inventory of Depressive Symptomology. Reported are regression analyses based on imputed data (ITT analyses, n=314). ^aReference group model 2: no preference. ^bReference group model 3: no experience with psychotherap

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