

Perspectives on Implementing the Patient Health Questionnaire-4 in Low-Vision Service Organizations to Screen for Depression and Anxiety

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Purpose: To describe the process of implementing a screening questionnaire for depression and anxiety, the Patient Health Questionnaire-4 (PHQ-4), in low-vision service (LVS) organizations.

Methods: This study consisted of three parts: (1) a usability study combined with semistructured interviews, in which clients ($n = 10$) of LVS organizations expressed their preference for using the PHQ-4; (2) a feasibility study, in which the PHQ-4 was implemented on a small scale and its use was evaluated, involving health care providers ($n = 6$) and clients ($n = 9$); and (3) semistructured interviews to identify barriers and facilitators for implementing the PHQ-4 according to health care providers ($n = 6$) and managers ($n = 4$) of LVS organizations. Results were integrated into themes and linked to constructs of the Consolidated Framework for Implementation Research (CFIR).

Results: Six themes were derived from the substudies: (1) quality of the intervention, (2) applicability for clients of LVS organizations, (3) attitude and needs of clients, (4) attitude of health care providers, (5) support within LVS organizations, and (6) embedment in current practice. Results could be linked to 12 CFIR constructs. The constructs "relative advantage," "patient needs and resources," and "available resources" emerged most prominently in our themes as either barrier or facilitator.

Conclusions: The PHQ-4 seems an appropriate screening instrument for use in LVS organizations because of its quality and adaptable use. It might provide opportunities to timely detect depression and anxiety, but challenges in implementing the PHQ-4 should be considered.

Translational Relevance: Barriers and facilitators for implementing the PHQ-4 may also apply to implementing other questionnaires in LVS organizations.

Introduction

Depression and anxiety are common in adults with visual impairment (VI).¹⁻³ About one-third experiences subthreshold depression and/or anxiety, whereas approximately 7% is diagnosed with an actual anxiety disorder and 5% to 7% with a major depressive disorder.^{1,2} This is considerably more often than in the

general population.^{4,5} Depression and anxiety can cause increased disability, reduced quality of life, deteriorated health status, and even mortality.⁶⁻⁸

Health care providers often tend to underestimate the negative effects of VI on mental health, feel uneducated, and lack confidence to detect and discuss mental health problems in adults with VI.⁹⁻¹¹ Also, standard procedures to identify depression and anxiety are lacking within low-vision service (LVS)

organizations.¹² As a result, subthreshold depression and anxiety in adults with VI are not identified in over 50% of the cases, and appropriate treatment is often not received.¹² To improve the identification of anxiety and depression among adults with VI, previous studies suggest that screening, followed by mental health support and feasible treatment options,¹³ could significantly improve clients' mental health.¹⁴

The Patient Health Questionnaire (PHQ)-4, a short and valid patient-reported outcome measure (PROM), might be an appropriate screening instrument for this purpose.¹⁵ The PHQ-4 has previously been developed as an ultra-brief screener for anxiety and depression.¹⁵ It is a combination of the previously validated PHQ-2 questionnaire for depression and the Generalized Anxiety Disorder (GAD)-2 questionnaire for anxiety, which both have good sensitivity and specificity for detecting depression and anxiety disorders.¹⁶⁻¹⁹ The PHQ-4 can also detect mild complaints of depression and anxiety and can be used by health care providers with no background in psychology or psychiatry.^{15,20}

As screening for depression and anxiety is not part of standard care within LVS organizations, implementation of the PHQ-4 in routine care requires changes in current practices and is known to be a challenging process.²¹⁻²³ It includes adjustment in the role of health care providers who administer the PHQ-4, providing feedback on the results to clients, and integrating and using the results in follow-up care. Health care providers often experience substantial barriers to make PROMs part of standard practice on technological, practical, and organizational levels.^{24,25} Successful implementation is enhanced when the intervention is compatible with the values and needs of all end users.^{23,26} Therefore, this study investigated the process of implementing the PHQ-4 in Dutch LVS organizations. This process is based on investigating (1) the usability of the PHQ-4 (i.e., how adults with VI would like the PHQ-4 to be used, (2) the feasibility of the PHQ-4 within LVS practice, and (3) the perceived barriers and facilitators for implementation of the PHQ-4.

Methods

The Medical Ethical Committee of Amsterdam UMC, location VUmc, the Netherlands, confirmed that the study protocol was exempted from ethical approval according to the Dutch Medical Research in Human Subjects Act (WMO), as no experiments were conducted. The study adhered to the tenets of the Declaration of Helsinki.

Study Design

The study was conducted between 2019 and 2021 and consisted of three parts: (1) a usability study, in which adults with VI expressed how they would like the PHQ-4 to be used; (2) a feasibility study, in which the PHQ-4 was implemented on a small scale within LVS practice; and (3) a study regarding the barriers and facilitators for implementing the PHQ-4 in this setting according to health care providers and managers of LVS organizations. The results of these three sub-studies were used to identify themes related to barriers and facilitators for implementation. These results can be used by LVS organizations to facilitate the implementation of the PHQ-4 in practice, which is outside the scope of the present study (Fig. 1). The PHQ-4 consists of four questions to screen for depression and anxiety with a recall period of 2 weeks.¹⁵ The content of the PHQ-4, scoring, and interpretation are displayed in Box 1.

Participants

Clients with VI, health care providers, and managers were recruited from three Dutch nationwide LVS organizations. Clients meeting the following inclusion criteria were invited to participate: (1) 18 years and older, (2) having VI from any cause without restrictions regarding visual functioning, and (3) not having severe cognitive impairment. We aimed to include a heterogeneous group of participants with respect to age, degree and cause of VI, additional impairments, and history of psychological complaints. Health care providers working as social workers, counselors, or professionals who perform service eligibility assessments, who may use the PHQ-4 in practice, were invited, as were managers leading these departments. All eligible participants received an information letter and provided written consent if they wanted to participate.

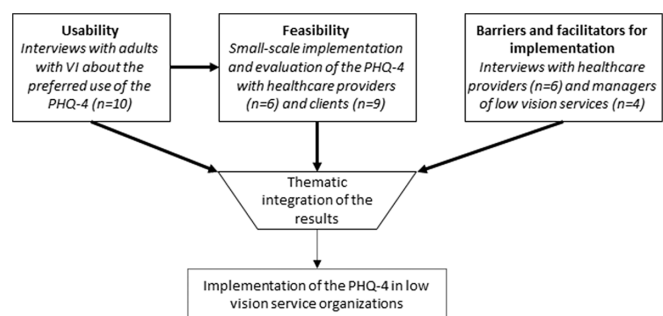


Figure 1. Schematic representation of the study design; dashed parts are not evaluated in this article.

Box 1. PHQ-4

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half of the days	Nearly every day
Feeling nervous, anxious or on edge ^a	0	1	2	3
Not being able to stop or control worrying ^a	0	1	2	3
Feeling down, depressed or hopeless ^b	0	1	2	3
Little interest or pleasure in doing things ^b	0	1	2	3

^aItem measures anxiety symptoms and originates from the GAD-2.

^bItem measures depression symptoms and originates from the PHQ-2; interpretation of total score: 0–2 = no complaints; 3–5 = mild complaints; 6–8 = moderate complaints; 9–12 = severe complaints.¹⁵

Procedure

Usability

A qualitative study using semistructured interviews with clients of LVS organizations was conducted to identify how adults with VI would like the PHQ-4 to be used within LVS organizations. Eligible clients were selected by experienced LVS professionals who introduced the study during their contacts with clients and asked whether they would be willing to participate. Topics included perceptions about the PHQ-4, mode of administration (e.g., verbal, digital, or Braille), involved health care provider, time of use in the care process, and repeated administration. A structured interview guide was used for the interviews (Supplementary File S1).

Feasibility

Next, the PHQ-4 was implemented on a small scale within LVS organizations, and its use was evaluated. Health care providers were recruited by contact persons from each of the three nationwide LVS organizations. The contact persons introduced the study and asked whether health care providers would be willing to participate. A researcher then explained the study in more detail. Health care providers were trained in using the PHQ-4 prior to the feasibility study. Manuals and scoring forms were developed and discussed with health care providers involved and improved based on their suggestions (e.g., the structure of the manual was adapted to separately present information prior to administration, during administration, and after administration, and specific instructions were added on how to radiate an open attitude, what to do if clients get emotional, etc.). Participating health care providers, in turn, selected clients with VI to participate, introduced the feasibility study, and asked whether clients would be willing to participate. Health care providers administered the PHQ-4 to clients according to standard

procedures that were based on the outcomes of the usability study.

Clients with a score between 3 and 8 (i.e., representing mild to moderate complaints and signaling subthreshold depression and/or anxiety) also filled in the PHQ-4 one month after initial completion. If they scored between 3 and 8 again, the PHQ-4 was administered a third time another month later. This period of “active monitoring” or “watchful waiting” is recommended by the European and American mental health guidelines as a first step to deal with mild symptoms of depression and anxiety.^{27–29} After each administration, clients and health care providers completed an evaluation form to share their experiences with using the PHQ-4.

Barriers and Facilitators

Health care providers and managers were subsequently interviewed about perceived barriers and facilitators for implementing the PHQ-4 in LVS organizations. The same health care providers participating in the feasibility study were asked by the researchers whether they would also be willing to participate in this part of the study. All health care providers had thus received training in administering the PHQ-4. The coronavirus disease 2019 (COVID-19) pandemic caused a stop in the intake of new clients. Therefore, only three health care providers actually administered the PHQ-4 at least once during the feasibility study and consequently gained practical experience in administering the PHQ-4. In addition, managers of the LVS organizations were asked by the contact persons whether they would be willing to participate. Managers received information about the PHQ-4 and its manual prior to the interview. Potential barriers and facilitators for implementation of the PHQ-4 were addressed at various levels, including those related to the PHQ-4 itself, health care providers and clients involved, and the social, organizational, economic, and

political contexts.³⁰ Interview guides tailored to health care providers and managers were used (Supplementary File S2).

Analyses

Participant characteristics, scores on the PHQ-4, and categorical responses on the evaluation forms were analyzed using descriptive statistics in SPSS (SPSS, Inc., Chicago, IL, USA). All interviews in this study were digitally recorded, transcribed verbatim, and analyzed with Atlas.Ti V8 software (ATLAS.ti, Berlin, Germany). For each substudy, three interviews were carefully read and coded by two researchers. Consensus-based discussions between the two researchers (EBME and HPAvdA for the usability and EPJvM and FvN for the barriers and facilitators) were held to create codes and categories.³¹ These codes and categories were applied to all interviews. Some new codes emerged when coding all interviews, for which consensus was reached as well, but additions were minimal, indicating data saturation.³² To integrate the results of the substudies, results from interviews and the qualitative information from the evaluation forms were summarized into themes and linked to constructs of the Consolidated Framework for Implementation Research (CFIR). The CFIR provides a comprehensive list of constructs, which are thought to influence implementation, across five major domains: intervention characteristics, outer setting, characteristics of individuals, inner setting, and implementation process.³³ Results were not linked to constructs associated with the fifth domain, the implementation process, because the PHQ-4 is not yet officially implemented on a large scale. Identified barriers and facilitators were subsequently organized within each applicable construct, resulting in an overview of important barriers and facilitators in implementing the PHQ-4.

Results

Usability

Ten clients were included in the usability study. Table 1 shows their sociodemographic and clinical characteristics.

Four main categories were identified from the interviews with clients: (1) “consequences of VI: mental health and support” which included the impact of VI, psychological complaints because of VI, and psychological support by LVS organizations; (2) “discussing mental health complaints,” which included willingness to discuss complaints and attitude and behavior

of clients and health care providers in discussing complaints; (3) “use of the PHQ-4,” which included perceptions regarding the PHQ-4, mode and moment of administration, involved health care provider, and insight in results; and (4) “measuring periodically,” which included time interval, support based on scores, and involved health care provider. Detailed results are presented in the themes, described in the integration paragraph.

Feasibility

The results of the usability study were used to set up the feasibility study. It was decided to administer the PHQ-4 face-to-face during the intake (within two LVS organizations) or during regular appointments with ambulatory clients (within one LVS organization). Six health care providers were involved in the feasibility study. Together, they administered the PHQ-4 and the evaluation form for nine clients. From the nine clients, only two experienced no complaints according to their scores on the PHQ-4. Six clients had a PHQ-4 score of 3 to 8 at baseline, and to them, the PHQ-4 was administered again 1 and 2 months later (Fig. 2), as was the evaluation form.

For one of the clients (PHQ-4 score 12), no evaluation form was available because deaf blindness made it too difficult and exhausting to complete the evaluation form. Clients and health care providers were all neutral to very satisfied with respect to various aspects of the PHQ-4, including mode and duration of administration, the interpretation of scores, and the clarity regarding subsequent steps. The complete administra-

Table 1. Sociodemographic and Clinical Characteristics of Clients in the Usability Study ($n = 10$)

Characteristic	Value
Age, mean \pm SD (range), y	57.1 \pm 18.8 (33–91)
Male gender, n (%)	6 (60)
Severity of VI, n (%)	
No/mild VI: logMAR \leq 0.52	1 (10)
Moderate VI: logMAR 0.53–1.00	2 (20)
Severe VI: logMAR 1.01–1.30	3 (30)
Blind: logMAR \geq 1.31	3 (30)
Unknown	1 (10)
Eye disease, n (%)	
Glaucoma	3 (30)
Retinal disease	4 (40)
Optic nerve disorders	1 (10)
Cerebral VI/visual pathways	1 (10)
Other	1 (10)
Time of onset VI, mean \pm SD (range), y	20.8 \pm 11.7 (3–40)
Education, mean \pm SD (range), y	10.5 \pm 2.2 (9–16)
Self-reported history of psychological complaints, n (%)	8 (80)

logMAR, logarithm of the minimum angle of resolution.

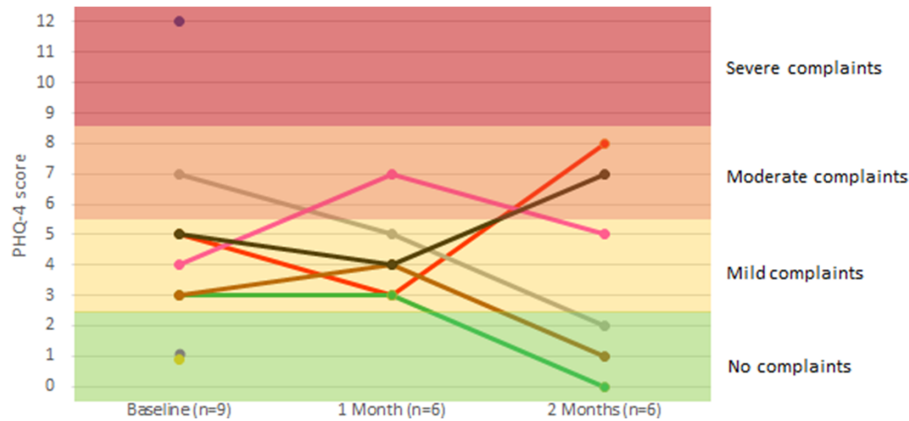


Figure 2. PHQ-4 scores of participants over time. Interpretation of PHQ-4 score: 0–2 = no complaints; 3–5 = mild complaints; 6–8 = moderate complaints; 9–12 = severe complaints.¹⁵

tion process was graded with an 8.3 out of 10 (range, 6–10) by clients and a 7.8 out of 10 (range, 7–9) by health care providers. The mean administration time (excluding an outlier of 30 minutes) was 11 minutes (median, 10; range, 4–20). Most clients and health care providers preferred 1 month between the first and second administration, as opposed to 2 months. Reasons for this were that clients were still actively thinking about their complaints after 1 month, and the duration of 1 month made it easier for health care providers to monitor their clients because they needed to see their clients again after 1 month.

Barriers and Facilitators Implementation

Ten experienced professionals (one male) working at three Dutch LVS organizations participated. Professionals worked in different professions: counselor ($n = 3$), social worker ($n = 1$), professionals who perform eligibility assessments ($n = 2$), and managers ($n = 4$). The average working experience was 14 years (median, 14; range, 10–17) for health care providers and 2 years (median, 1.5; range, 1–4) for managers.

Health care providers and managers mentioned barriers and facilitators regarding the quality of the PHQ-4, the applicability of the PHQ-4 in people with VI, eligibility of clients of LVS organizations, and providing appropriate follow-up care. Attitude and competence of health care providers to use the PHQ-4 were considered to facilitate or hinder implementation. The current practices of LVS organizations, their views on mental health care, and their organizational structures were also mentioned as barriers or facilitators, as were clients themselves and the low-vision sector as a whole.

Integration

In Table 2, barriers (–) and facilitators (+) linked to the CFIR constructs are described for each theme related to implementing the PHQ-4 in LVS organizations. Six themes were derived from the substudies: (1) quality of the intervention, (2) applicability for clients of LVS organizations, (3) attitude and needs of clients, (4) attitude of health care providers, (5) support within LVS organizations, and (6) embedding in current practice.

Quality of the Intervention

Most clients, health care providers, and managers were positive about the PHQ-4. Health care providers and managers thought the PHQ-4 is a user-friendly, short questionnaire and invites people to discuss mental health problems. Moreover, the manual is explicit, contains valuable information about depression and anxiety, and provides clear guidelines. Clients stated the PHQ-4 was a short and clear questionnaire with questions that touched on the most important aspects of mental health problems and with feasible answer options.

I think the questions are clear in themselves. I don't think that needs extra explanation. At least, no, if you have those questions, maybe I would indeed like to hear them a second time, but then they speak for themselves. (Usability, female, 42 years, blind)

Nonetheless, some clients hardly believed that their mental health could be screened with only four questions, while health care providers thought the score represented their clients' well-being adequately. Some clients and health care providers provided several

Table 2. Overview of Barriers and Facilitators for Implementation of the PHQ-4

Theme	Construct CFIR	Barriers and Facilitators
1. Quality of the intervention	Design quality and packaging (+, -) Relative advantage (+)	<ul style="list-style-type: none"> • Characteristics and content PHQ-4 (+, -) • Characteristics and content manual (+) • Lack of depression and anxiety questionnaire (+) • Limited guidelines discussing mental health (+) • Added value for follow-up care (+)
	Evidence strength and quality (+, -)	<ul style="list-style-type: none"> • Increasing attention for mental health (+) • Tool to discuss depression and anxiety (+) • Outcome represents mental health (problems) (+, -)
2. Applicability for clients of LVS organizations	Patient needs and resources (+, -) Adaptability (+, -)	<ul style="list-style-type: none"> • Suitability for all clients of LVS organizations (-) • Standard administration (+, -) • Practical challenges administration (-) • Administration modes (+)
	Patients' needs and resources (+, -)	<ul style="list-style-type: none"> • Defensive, practical, and closed attitude (-) • Willingness to discuss mental health (+, -) • Preferences for health care providers that administer PHQ-4 differ (-) • Preferred moment of administration differs (-) • Clients' focus on practical support for VI (-) • Influence health care provider on openness clients (+, -)
4. Attitude health care providers	Relative advantage (+, -)	<ul style="list-style-type: none"> • Importance of implementation PHQ-4 (+) • Preferences for current practice (-)
	Self-efficacy (+, -)	<ul style="list-style-type: none"> • Need for various competencies (-) • Need for knowledge (-) • Confidence in discussing mental health (+, -)
	Knowledge and beliefs (+, -) Available resources (+)	<ul style="list-style-type: none"> • Implementation is important and necessary (+) • Reluctance to use PHQ-4 (-) • Availability of suitable professions that can administer the PHQ-4 within LVS organizations (+)
5. Support within low-vision organizations	External policy and incentives (-)	<ul style="list-style-type: none"> • No clear mutual perspective on procedures for intakes and mental health care (-) • No clear mutual perspective on the PHQ-4 (-)
	Tension for change (+)	<ul style="list-style-type: none"> • (Increased) current attention for mental health (+) • Current limited guidelines (+)
6. Embedding in current practice	Compatibility (+, -)	<ul style="list-style-type: none"> • Applicability existing procedures (+) • Intensive and exploratory nature of intake (-) • Lack of follow-up procedures (-)
	Patients' needs and resources (+, -)	<ul style="list-style-type: none"> • Variety of follow-up care (-) • Possibility for periodical assessments (+) • Preferred interval periodical assessments differ (-) • Record results in medical file (+)
	Available resources (+, -)	<ul style="list-style-type: none"> • Limited costs (+) • High workload (-) • Increased burden clients and health care providers (-) • Integration in digital medical files (+)
	Structural characteristics (-)	<ul style="list-style-type: none"> • Differences between locations (-) • Organizational changes (-)

(-), barrier; (+), facilitator; (+, -), barrier and facilitator.

remarks regarding the content of the PHQ-4, such as insufficient clarity of questions, similarity between questions, superficiality of questions, lack of questions, and lack of response options. In addition, they both mentioned that the score is a snapshot and that the recall period of 2 weeks is too short because symptoms can fluctuate over time.

Applicability for Clients of LVS Organizations

Both clients and health care providers mentioned that the PHQ-4 is suitable for clients with VI. However, health care providers doubted its suitability for all LVS users due to population diversity caused by comorbidity (e.g., acquired brain injury and mental, cognitive, or auditory impairment). These comorbidities in combination with VI may cause practical challenges for using the PHQ-4, such as difficulty in reading, hearing, or understanding the questions. However, health care providers also envisioned solutions for these obstacles, such as verbal administration, larger fonts, explaining questions with examples, or asking a relative for support. Clients preferred face-to-face administration, although administration through telephone, web-based surveys, and Braille was also mentioned.

Well I think by e-mail. . . . If you are visually impaired, you should just not want that. It will then always be by telephone. But at least through a moment of contact, to give attention to the client if necessary. I think that's most important. And that can be by telephone or in a personal conversation. (Usability, female, 46 years, variable VI)

Health care providers stated that administering the PHQ-4 through telephone was as efficient as face-to-face administration; it was easy to administer the PHQ-4 via telephone conversation, and it did not require more time. Health care providers questioned the appropriateness of standard administration of the PHQ-4 during the intake because not all potential clients might be eligible for LVS care, and follow-up mental health treatment within LVS can therefore not be guaranteed.

Attitude and Needs of Clients

Both clients and health care providers mentioned that the client's attitude toward discussing mental health can be a potential barrier or facilitator. Clients varied in their attitude toward the PHQ-4 and their preference of the health care provider that should administer the PHQ-4 (i.e., some preferred a counselor while others preferred a psychologist, social worker, or a professional who performs eligibility assessments). Half of the clients preferred the PHQ-4 to be administered during a follow-up appointment, when there is already some connection or relationship of trust

between client and health care provider. Most clients recognized the importance of implementing the PHQ-4, although a few specifically preferred current practice and thought implementation of the PHQ-4 would not be of added value.

Well I think that the people working there [at the LVS organizations] are real professionals and that they'll soon realize whether someone is depressed or not without such a list of complaints. Without that questionnaire. (Usability, female, 91 years, severe VI)

In addition, health care providers mentioned that some clients tend to focus on their practical needs during an intake and may have a defensive and closed attitude toward discussing mental health, while other clients may be relieved someone asks them about their feelings. Clients might also not always be (immediately) open to discuss their mental health, which may lead to socially desirable responses. Both clients and health care providers mentioned that attitude and behavior of health care providers could facilitate or prevent honest answers. Clients provided solutions to obtain honest answers.

You could ask multiple questions. That you actually work towards the same goal, but ask them in a different way. And maybe if there is someone with you who you trust. That might make it a bit easier. Yes . . . so for example a partner or something like that. If there is someone you love, you will not give wrong answers. I assume. (Usability, male, 58 years, severe VI)

Attitude of Health Care Providers

All health care providers indicated that they regarded attention for depression and anxiety in this population as important and were positive about implementing the PHQ-4. They thought the PHQ-4 provided several opportunities (e.g., detection of mental health problems, providing information about possibilities for receiving mental health care, introducing the possibility of receiving care from a social worker/psychologist, referring to tailored follow-up care and monitoring client's mental well-being). Some health care providers mentioned the need to prepare, concentrate, and choose a quiet moment to administer the PHQ-4. They also had to suppress being tempted into a conversation when a client expressed doubts regarding the response options or when a client wanted to share their story.

Both health care providers and managers mentioned some health care providers feel more confident in discussing mental health than others, which might be related to their background, knowledge, and experience. They felt this lack of confidence and being

unfamiliar with the PHQ-4 might result in reluctance to use the questionnaire. However, health care providers expected enthusiasm in most of their colleagues, especially after training.

Some [health care providers] are more confident in administering these questions than others. However, I think that a proper introduction that enhances the need, because of the current lack of attention in our organizations, will increase the understanding to work with this instrument. (Implementation, professional who performs eligibility assessments)

According to health care providers, several professional groups (e.g., occupational therapists, social workers, counselors, psychologists, and professionals who perform eligibility assessments) should be able to administer the PHQ-4, with or without additional training. They indicated that health care providers need various competencies to administer the PHQ-4: an open and empathic attitude, able to respond to unexpected situations, and able to estimate clients' honesty and to create a safe environment by building a bond of trust.

Support within LVS Organizations

Health care providers expressed increased attention for mental health within LVS organizations in the past few years (e.g., by means of counselors listening and giving advice to clients about mental health problems, referrals to general practitioners, and support groups). In addition, in recent years, new methods for supporting adults with VI have been developed and implemented (i.e., a stepped-care program). However, both health care providers and managers indicated guidelines for discussing clients' mental health are lacking. They expected that the PHQ-4 will ensure increased attention for mental health because it provides health care providers with a tool to identify and discuss depression and anxiety, also among those not willing to discuss mental health complaints.

I occasionally had moments in my daily work when I thought, if I could complete that questionnaire right now, I would have benefited from it with this client. (Implementation, counselor)

Managers mentioned that the three Dutch LVS organizations started a consortium to collaborate on offering the best possible care to clients with VI, but the consortium is currently lacking a mutual perspective on the content of intakes and follow-up of mental health support. They expressed the desire for a mutual decision about implementing the PHQ-4.

Embedding in Current Practice

Health care providers and managers expected that the PHQ-4 can be easily implemented in existing procedures, such as intakes, treatment plans, and evaluations, which is in line with the wish for periodical assessments to see progress over time as expressed by clients. Almost all health care providers mentioned that the PHQ-4 might be easily incorporated in the intake procedure, because psychological well-being is already one of the subjects to discuss during intake. However, some health care providers worried about the increased burden for themselves and their clients.

An intake by telephone has to be administered within an hour. It is intensive to discuss that many subjects, also psychosocial well-being, with your clients. . . . During an intake there are different areas of concern, and as a professional who performs eligibility assessments you have to get an overview. The question remains: which topics ask for more specific questions? (Implementation, professional who performs eligibility assessments)

All health care providers and managers indicated integrating the PHQ-4 into the organizations' digital administration system would facilitate standard administration of the PHQ-4; reminders can be sent, and in case of nonadministration, a valid reason should be provided. None of the clients were reluctant to provide permission for saving the outcome of the PHQ-4 in their medical files. However, health care providers missed clear follow-up procedures. They reported uncertainty about discussing and monitoring results, reporting procedures, and role responsibilities for follow-up care, which they thought should be attributed to case managers and social workers.

It is very good to administer the PHQ-4, but you also need to have a plan if it turns out that someone is depressed or at high risk for depression. What is the role of our organization and who is responsible for it? (Implementation, manager)

Finally, managers and some health care providers mentioned differences between locations as a barrier, for example, differences in the administration of intakes (face-to-face versus telephone and the variety of professions administering intakes), differences in preferred implementation strategies (face-to-face meetings, instruction via e-mails, on-site training, etc.), and differences in the manner in which teams are self-organizing.

Discussion

The aim of this study was to describe the process of implementing the PHQ-4 in LVS organizations based on a usability study, feasibility study, and study on barriers and facilitators for implementation. According to clients and health care providers, the PHQ-4 seems an appropriate questionnaire to screen for depression and anxiety in clients of LVS organizations. Implementation of the PHQ-4 entails some barriers, which can be addressed by taking into account the clients' and health care providers' attitudes toward using the PHQ-4 but also considering embedding the PHQ-4 within the organizational structure and current practices.

Most clients were positive about implementing the PHQ-4 in LVS organizations but addressed some potential barriers in their attitudes toward the PHQ-4. Clients' reluctance to discuss mental health is presented as a potential barrier in depression management.^{9,11} However, adults with VI have previously shown positive attitudes toward the use of screening instruments^{20,34} and expressed needs for health care providers to discuss mental health more often.³⁵ The PHQ-4 could be a tool for health care providers to discuss mental health with their clients. Nevertheless, socially desirable answers might pose a threat to obtaining valid responses. Social desirability bias is more prevalent in interview (face-to-face and telephone) administration compared to self-administration (postal or electronic),³⁶ although face-to-face administration is the preferred mode of administration according to most clients, which is consistent with literature.³⁶ Methods exist to prevent socially desirable answers, such as ensuring confidentiality, checking responses, and indirect questioning. The ability of the health care provider to sound neutral, probe, listen, aid recall, and record responses also plays a role.³⁶ Therefore, it is recommended to train health care providers on how to ensure confidentiality; have an open, nonjudgmental attitude; probe adequately to obtain more information; and listen to their clients while recording their responses accurately. In addition, repeated administration of the PHQ-4 is recommended to meet the needs of clients with respect to variability in the preferred moment of administration, in the bond of trust between client and health care provider, and in the presence of a case manager.

The feasibility study indicated that seven out of nine clients had at least mild complaints of depression and/or anxiety, underlining the importance of implementing the PHQ-4. This is consistent with the

prevalence of subthreshold depression and anxiety previously found.¹ Most of the clients in the feasibility study were ambulatory clients, already receiving care, albeit not for mental health problems. Thus, their depression and anxiety complaints had not been formerly observed by health care providers, resonating findings that screening instruments for depression and anxiety are more reliable than the intuition of health care providers without specific knowledge of mental health.³⁷

In general, health care providers were positive about implementing the PHQ-4, because it provides them with the opportunity to detect mental health problems, offer appropriate care, and monitor their clients. However, guidelines for standard administration can be rejected when health care providers feel administering the PHQ-4 is inappropriate (e.g., when they think a client is feeling fine).³⁴ Some health care providers doubted their ability to administer the PHQ-4 due to lack of confidence, knowledge, and self-efficacy. Lack of confidence is a known barrier for depression management in eye care practitioners and rehabilitation workers.⁹⁻¹¹ In line with previous studies,⁹⁻¹¹ health care providers often preferred training to increase their knowledge on depression and anxiety and in administering the PHQ-4, resulting in higher confidence. Both knowledge and self-efficacy are also important in changing health care providers' behavior and adopting an intervention.³⁸ Providing education on depression and anxiety management is important to increase health care providers' knowledge about mental health problems and its treatment options. Training may have positive effects on their confidence, decrease potential barriers, and subsequently increase their tendency to act when they suspect depression, for example, by using the PHQ-4.^{34,39,40} Together with a tailored manual, training could offer health care providers essential tools to administer the PHQ-4 with confidence, which increases the likelihood of using the instrument.

Both clients and professionals thought the PHQ-4 is applicable for most clients of LVS organizations. The mode of administration can be tailored to the needs of adults with VI. Health care providers expressed some doubts about the applicability of the PHQ-4 in clients with cognitive impairment, psychiatric comorbidities, and hearing loss. Health care providers should always consider whether administration provides reliable results, especially in those who might have difficulty in understanding the questions. Moreover, health care providers doubted standard administration during intake, since clients sometimes are ineligible for LVS care. Even those who are ineligible for LVS care could be screened, because they

can still benefit from mental support. Being aware of mental health complaints often is a first important step in the recovery of those complaints. For example, the feasibility study showed that a 2-month period of “watchful waiting” resulted in recovery in 50% of the cases, and a larger study found that 34% of persons with VI recovered from their complaints after such a period.⁴¹

To reach its full potential, the PHQ-4 has to be embedded within current practice. Although it fits within existing information systems and processes, health care providers expressed some concerns using the PHQ-4 during the intake. Extensively discussing mental health as a result of screening has an impact on time and service management.³⁴ Therefore, it seems important to introduce the PHQ-4 as a tool that helps to ask specific questions about mental health, which might be less time-consuming than health care providers think, especially after training. Moreover, the entire rehabilitation trajectory could benefit from early recognition of mental health problems, since mental health problems may hinder successful and efficient rehabilitation. Furthermore, health care providers addressed the lack of appropriate follow-up guidelines after administering the PHQ-4. Developing a workflow outlining possibilities for follow-up care could help to increase the likelihood of using the PHQ-4. The workflow should answer the following questions: when is follow-up care needed, what are the care options, and who will provide this? In Dutch LVS organizations, stepped care for depression and anxiety, an evidence-based and cost-effective intervention program,^{13,42} is considered follow-up care for clients who experience mild symptoms.

Strengths and Limitations

A strength of the study was that implementation of the PHQ-4 in LVS organizations was explored from different perspectives by including all relevant stakeholders (i.e. clients, health care providers administering the PHQ-4, and managers of the LVS organizations). With respect to clients, we included a heterogeneous sample, with respect to age, gender, severity of VI, and history of psychological complaints, to give a good representation of the diversity and different perspectives on (potential) clients of LVS organizations. This heterogeneous sample has provided a variety of perspectives, all relevant for the implementation of the PHQ-4. Moreover, the CFIR was used as a theoretical framework to develop interview guidelines and to analyze the qualitative results. During analysis, the CFIR provided constructs to link barriers and

facilitators emerging from each substudy and enabled us to integrate the results of all three substudies. A limitation of the study is that those who participate in research regarding depression and anxiety might have a strong opinion on the importance of implementing the PHQ-4. For example, health care providers who already have a focus on mental health might have been more likely to participate in this study, might be more positive about implementing the PHQ-4, and might identify fewer barriers. Therefore, it is important to keep track of potential barriers during and after implementation and tackle these barriers accordingly. As a second limitation, uncertainty remains about how adequately health care providers administered the PHQ-4, because it is unclear if health care providers completely followed the guidelines during administration. Due to the COVID-19 pandemic, fewer intakes were conducted at the LVS organizations. As a result, experiences with the PHQ-4 were mainly retrieved at one LVS organization, which administered the PHQ-4 to ambulatory clients during regular appointments. It remains unclear whether small-scale implementation within the other LVS organizations and during the intake would have resulted in similar outcomes. In addition, results suggest that administering the PHQ-4 in clients with deaf blindness might be more difficult, but concrete recommendations to improve administration are lacking. There are also doubts about administration to clients with cognitive impairment or psychiatric comorbidity, but recommendations for these groups are lacking as well.

Conclusion

This study suggests that the PHQ-4 is an appropriate screening instrument for use in LVS organizations, because of its adaptability for use in adults with VI. It provides opportunities to detect depression and anxiety early, provide appropriate care, and monitor mental health. Procedures are required to document and monitor symptoms of depression and anxiety and to follow up with treatment when needed, including role definitions of various health care professionals involved. Despite the fact that the PHQ-4 contains only four questions, its implementation could entail barriers at various levels. Our inventory of the barriers and facilitators for implementation can help to develop an implementation plan and use appropriate implementation strategies to address barriers for implementation, for example, by providing training for health care providers.

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