Integrating Telepsychiatry Into Rural Primary Care for Upstream Prevention: Feasibility Case Study of the Faith Net Program

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Abstract

Introduction: For decades, there has been a deficit of mental health services in rural areas of the United States. Beyond that longstanding need, the COVID-19 pandemic has reportedly increased the prevalence of unmet mental health needs among adults. Presently, many non-critical but urgent mental health concerns are first identified in rural emergency departments. This report describes the results of a 6-month feasibility case study of a program to integrate telepsychiatric triage "upstream" from emergency departments in rural primary care.

Methods: At routine primary care encounters in a single midwestern rural county, patients at risk for moderate-severe or severe depression, expressing thoughts of self-harm, or otherwise presenting in a way that raised clinical concern for mental or behavioral health, were referred to on-site telepsychiatric triage. Patients whose triage indicated further concern were provided six psychiatric and/or social work encounters for stabilization and treatment.

Results: 68 patients were referred to telepsychiatric triage during the pilot study (.85% of the estimated adult population in the county). Of those, only two had a documented mental/behavioral health diagnosis prior to triage, but 46 were diagnosed with at least one psychiatric disorder during the program.

Conclusions: This model of telepsychiatric triage was feasible in rural primary care and may support identification and mitigation of unmet mental health needs.

Keywords
telepsychiatry, rural health, case study, telehealth, primary care

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What do we already know about this topic?
Rural Americans experience a high prevalence of undiagnosed mental and behavioral health issues and struggle to access mental health care services.

How does your research contribute to the field?
This case study describes an innovative use of telepsychiatry in primary care to facilitate psychiatric triage 'on-the-spot' in primary care in lieu of a referral.

What are your research's implications toward theory, practice, or policy?
The program described in this case study was feasible to implement in rural primary care and almost immediately began to identify previously undiagnosed mental health concerns; larger research studies of this approach are warranted.

Introduction

Mental Health Needs in Rural America

There has been a longstanding need for, and corresponding deficit of, mental health services for rural Americans.[1] However, the issue was brought into much sharper focus in 2015, when Case and Deaton published a paper identifying recent, alarming increases in mortality among non-Hispanic white men and women in the United States.[2] Further analyses identified that such increases generally were observed in non-urban areas, and were often the result of completed suicide, poisoning, and liver disease.[3] Researchers have suggested that these harms often accrue not from increased prevalence of mental illness in rural areas relative to urban, but rather from a disparity in access to treatment.[4] The U.S. Centers for Disease Control and Prevention recently identified a substantial increase in the prevalence of adults reporting unmet mental health care needs following the onset of the COVID-19 pandemic,[5] likely exacerbating this problem in multiple but as yet undefined ways.

The Promise of Telehealth

Researchers and practitioners have suggested that telehealth, particularly telepsychiatry, may facilitate delivery of rural mental healthcare.[6,7] Carefully and thoughtfully designed telepsychiatry programs have demonstrated both implementation feasibility and patient satisfaction.[8] At the same time, leaders in telepsychiatry have emphasized the importance of a team-based approach and customized psychiatric care while warning about the need to move forward carefully to avoid unintended consequences.[9] Lower uptake of telehealth services in rural areas appears to be associated with localized differences across multiple levels–patient, provider, and region.[10] For example, in one rural patient panel, telehealth use during the COVID-19 pandemic was positively associated with high health literacy, but also with higher scores on the Perceived Stress Scale.[11]

Telehealth for Rural and Remote Emergency Care

For specialty healthcare, including mental health, rural provider shortages are pronounced; in Indiana, for example, more than 70 of the state's 92 counties fall into federally designated rural or partially rural mental health provider shortage areas.[12] In such areas, it is therefore unsurprising that many non-critical but urgent specialty healthcare needs are first identified and triaged in a rural emergency department. A 2017 systematic review of rural, non-critical emergency telehealth (published in 2019) identified 15 studies (many at the pilot and feasibility level) across multiple service domains.[13] Such programs generally focus on improving rural and remote access to specialists, such as psychiatrists, radiologists, and opthamologists, and typically use a hub-and-spoke model where a specialist in a larger healthcare system is engaged by practitioners in rural or remote emergency departments.[13] A more recent preregistered review from 2021 identified 21 such studies, with similar specialty foci and emphasis on rural hospital emergency settings.[14] The studies in those systematic reviews variously included services across the spectrum of approaches described in the American Telemedicine Association taxonomy: virtual visits, asynchronous interactions, remote patient monitoring, and other technology-enabled modalities, such as teleconsultation.[15] Further, both reviews described programs that were consistent the first cohort of the US Health Resources and Services Administration (HRSA) Tele-Emergency Network Grant Program, which collected data from 2015 to 2017 across 65 spoke hospitals, 91% of which were rural.[16]

Our Approach to Rural Emergency Telepsychiatry

In 2020, our team responded to HRSA's solicitation for additional tele-emergency network programs by designing and proposing a variation on the standard emergency hub-and-spoke model of specialty telehealth operated out of spoke hospitals. Inspired by a rural community needs assessment in Martin County, Indiana, general principles of

integrated care,[17] and recommendations from rural faith community nurses, our program–called Faith Net–is designed to use telehealth and strategic procedures to optimize identification and management of serious mental and behavioral healthcare needs. The Faith Net program moves specialty care (psychiatric triage) "upstream" from rural emergency departments and into community primary care offices. The logic behind the structure of our program is as follows:

a. Emergency telepsychiatry programs have tended to locate spoke (e.g., originating referral) sites in rural emergency departments.[13,14] However, in the case of Martin County (and similar areas in the US), even arriving in a rural emergency department requires patient travel outside of the county (e.g., via personal vehicle, ambulance, or other transport), resulting in accrued costs and potential feasibility barriers in the case of lack of access to transportation.

b. Identification and mitigation of non-critical but emergent mental and behavioral healthcare concerns in primary care, similar to integrated care models,[17] might therefore improve access to care and reduce costs for all parties.

c. However, typical integrated care models may not be feasible in areas with substantial provider shortages. For instance, in 2020, Martin County, IN, had a mental health provider to population ratio of 5130:1, ranking 90th out of 92 counties (Indiana mean = 590:1).[18] While there is emerging evidence that telepsychiatry can facilitate integrated primary and mental/behavioral health care,[19,20] such procedures may manifest differently in cases where resources and capacity are limited.

d. By using a community-engaged approach to designing the Faith Net model (to borrow a phrase, emphasizing "with whom" rather than "to whom"[21]), we learned that the approach deemed most likely to succeed *by the community providers* was to leverage existing means of identifying mental and behavioral health risks in primary care (minimizing disruptions to extant primary care workflows that already were overburdened) and to provide simple means of enabling in-the-moment telehealth triage with a mental health care provider, with the option for telepsychiatric referral. We describe this process in more detail in the Methods.

The overarching goal of Faith Net is to reduce the likelihood that psychiatric or other mental/behavioral healthcare concerns will go unaddressed, despite the absence of locally available mental health providers and resources for intensive screening, and especially in cases where they might otherwise escalate and result in the need for emergency care.

Given the ongoing need for rural mental healthcare and renewed interest in telehealth sparked by the COVID-19 pandemic, the timing is optimal to conceptualize and document novel approaches to rural emergency telehealth and their corresponding outcomes, especially when a procedure could be 'packaged' for use beyond single implementation sites. To this end, our study describes and contextualizes the results of a 6-month feasibility case study of the Faith Net rural emergency telepsychiatry program.

Materials and Methods

Setting

The Faith Net project was piloted in Martin County, IN, a rural midwestern county of approximately 10,000 residents (all ages). County residents are primarily White and non-Hispanic, with per capita income that is substantively lower than the state per capita income. Approximately 13% of county residents ages 25+ have a bachelor's degree or higher. Around one-tenth of the county is composed of veterans.[22] Based on the most recent county health rankings (drawn from the 2018 Behavioral Risk Factor Surveillance Survey), the average age-adjusted days of poor mental health in the past 30 days was 5.0, and 16% of adults (age-adjusted, margin of error 15%-18%) reported 14 or more days of poor mental health per month.[18] In a 2019 county needs assessment (co-led by study author AT), 77% of individuals cited availability of mental health services as a barrier to seeking care, 55% reported not knowing where to go to seek behavioral healthcare, and 87% indicated they would have to leave the county to access mental health services.

The county is home to two small primary care practices, located in each of the two largest towns, and several faith community nurses, who provide wholistic care in community and client-based settings. There is a single, small behavioral health site in the county that provides wraparound services, and the closest rural hospitals are in adjacent counties (~25 minutes or more by car).

The initial 6-month pilot period of the Faith Net project (June 1, 2021, through November 30, 2021) took place at the two primary care practices and with one separately practicing faith community nurse. A psychiatric advanced-practice nurse (APN) and a social worker (SW) were remotely housed in the mental healthcare arm of the hospital and healthcare system in an adjacent county and provided the initial telehealth services for the project.

Identification of Patients

Independently of Faith Net, primary care procedures in each site include annual completion of the Patient Health Questionnaire (PHQ-2), followed by the PHQ-9[23] in cases of a positive result, except that the PHQ-9 is always completed at Medicare annual wellness visits (e.g., PHQ-2 is skipped).

As described in the Introduction, current workflow parameters in the primary care sites preclude the addition of

additional screening tools. Therefore, determination of the need for psychiatric triage was based on a combination of the extant data (PHQ-9 score and individual item responses) and providers' clinical judgment. The decision heuristics used by primary care providers to identify when Faith Net telepsychiatry triage would be solicited were:

1. A score on the Patient Health Questionnaire (PHQ-9) indicating moderately severe or severe depression (15+).[23]
2. Any score other than a zero on PHQ-9 question 9, which asks about death and self-injury. This metric produces significantly more positives than the gold standard Columbia-Suicide Severity Rating Scale (C-SSRS),[24] but our intent with this item was to rapidly establish need for psychiatric triage, not to diagnose.
3. An assessment by a medical assistant, nurse, or primary care provider, using reasonable clinical judgment, that there was an emergent risk to the patient related to psychiatric or behavioral health (independently of screening). Research on the use of clinical judgment in identifying mental health concerns indicates that it is an imperfect approach to diagnosis,[25] and that measurement-based care tends to out-perform care as usual.[26] However, in this program, clinical judgment was used *only to determine who might plausibly need psychiatric triage*, and then diagnosis and care planning, if either was applicable, were managed by the mental health provider (see Operational Procedures).

Operational Procedures

1. Patients who were referred to the Faith Net program were invited to participate in a telehealth triage visit on-site at their primary care office with either the APN or SW, or both, depending on the nature of the referral.

   a. In infrequent cases where the APN or SW were working on-site at the primary care office at the time of a referral, in-person triage was permitted.
2. Any patient who completed triage was assigned a true random ID (fully deidentified) in an app where selected data were populated for program monitoring and continuity.
3. Patients whose triage visit identified concerns were offered up to six subsequent psychiatric encounters at no cost to the patient to allow for stabilization, determination of a treatment plan, and a warm handoff to a long-term provider when appropriate.
4. At the first of such encounters, the APN also administered the adult DSM-5 Cross-Cutting Symptom Measure.
5. When needed, a social worker facilitated continuity of care and worked to remove barriers to treatment, such as those related to health insurance and travel.

The decision heuristics and operational procedures are also provided in a visual flowchart in Figure 1.

Measurement of Feasibility

The terms 'pilot' and 'feasibility study' are often, but not always, used interchangeably, likely because there is a wide variety of general guidance on conducting and structuring pilot and feasibility studies across multiple fields.[27-30] Among the most parsimonious explanations was offered by Orsmond & Cohn, who simply posed two questions: "Can it work?" and "Does the intervention show promise?"[31] To explore those questions, we collected descriptive data addressing several questions related to the viability of the program:

1. "Will the established procedures result in identification and referral of at-risk patients, and if so, at what volume?"
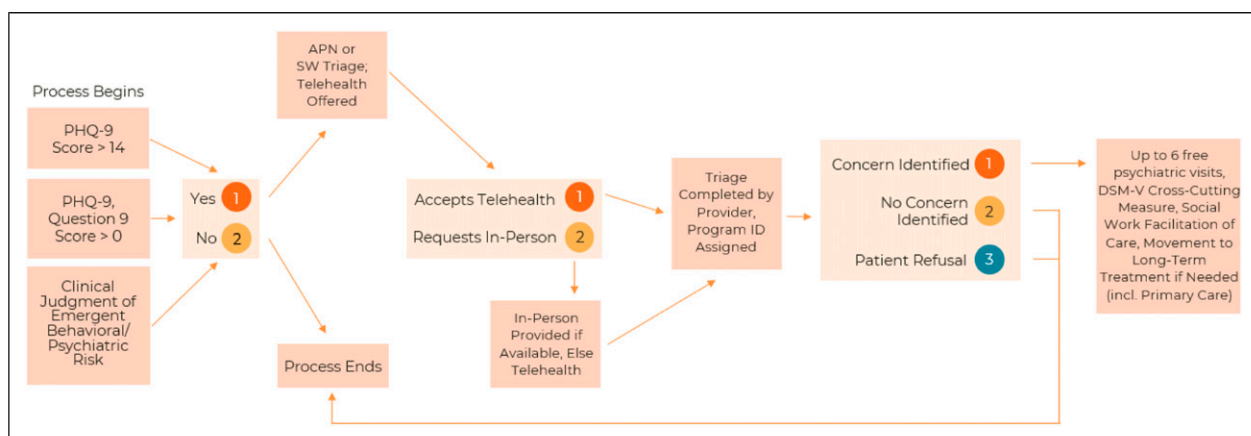
Figure 1. Faith Net procedure outline.

a. Number of unique patients referred for triage, cumulatively and separated by referral to the APN, to the social worker, or to both;
b. Mean number of referrals per week (percentage of total referral volume divided by 27 weeks);
c. Percentage of unique patients referred for triage out of the total number of unique patients seen at each primary care site during the study period;

2. "To what degree will the patients accept the use of a telehealth modality (versus in-person) for triage?"
d. Number of triage encounters completed via telehealth (versus in-person);

3. "What are the broad diagnostic characteristics of patients who engage with the Faith Net program (both extant diagnoses in the medical record and new diagnoses through the program)?"
e. Number of patients who were referred to Faith Net triage who had an extant psychiatric or behavioral healthcare diagnosis in their medical record;
f. Counts of the most common initial diagnoses (where n ≥ 5) among patients who were assessed via DSM-5 measure (i.e., at least one post triage visit with APN, using [g] as the denominator);

4. "What is the general trajectory of follow-up care for patients who are triaged through Faith Net?"
g. Number of patients who attended at least one post-triage Faith Net visit, cumulatively and separated by APN and social worker; and
h. Number of patients who were released from care by the APN by November 30, separated by trajectory of their recommended future care.

Use and reporting of the data as described in this manuscript was approved by the Indiana University Institutional Review Board (Protocol #13740).

Sample Size and Statistical Analysis

Consistent with meta-research on pilot and feasibility studies,[32] which has recommended sample size *justification* but not necessarily a priori power *calculation*, this study did not compute an a priori power analysis because the intended outcome was not a measured effect size. The soft launch lasted six months and included all eligible patients. Data analyses were descriptive, either provided as raw numbers or ratios, consistent with suggested methodologies for clinical pilot work.[33]

Results

During the project's 6-month pilot and feasibility period, a total of 68 patients were referred to the Faith Net program because of PHQ-9 scores suggesting risk of moderate-severe or severe depression or potential suicide risk, or due to providers' clinical judgment suggesting incipient risk from mental or behavioral health issues. This number represented .85% of the 2021 estimated adult population of the county.[34] In Figure 2, we illustrate the distribution of referred patients by month, by site of origin (primary care 'Site 1' and 'Site 2,' the faith community nurse, and unknown). That figure also includes percentages of patients referred to Faith Net as a function of the total number of unique patients seen for primary care at the site that month (ratio comparisons unavailable for June, as transition to a new electronic health record that month limited our ability to obtain a denominator). For example, Site 1 had 5 referrals to Faith Net in July, representing 1.29% of the total adult primary care patient volume at that site. These percentages are likely marginal underestimates because they do not incorporate referrals from an 'unknown' origin (patients who disengaged with the program at the point of triage, and who thus did not progress to data collection, n = 11).

Of the 68 patients who were referred, 50 referrals were to psychiatric triage only, 11 were to social work triage only, and 7 were to both. Only 2 patients of the 68 had any extant psychiatric diagnosis in their medical record prior to their referral. Most patients accepted triage using telehealth services (73.5%), but approximately one-quarter of patients chose to receive in-person triage. The latter option was limited to times when the provider was already on-site. Of the patients who were triaged, 46 enrolled in and began the sequence of free psychiatric encounters offered by the Faith Net program. The most common diagnoses among those patients were adjustment disorder, (n = 17), major depressive disorder (n = 7), generalized anxiety disorder (n = 15), panic disorder (n = 5), post-traumatic stress disorder (n = 8), and bipolar disorder (n = 5).

Of patients whom the psychiatric APN had released from care as of November 30, 2021 (n = 18), roughly half (55.6%) were returned directly to primary care for management of their diagnoses, 44.4% were referred to continuing or specialty psychiatric care, and one person also was additionally referred to a psychiatric medication provider. Data are more completely described in Table 1.

Discussion

The Faith Net procedures for providing rural, upstream psychiatric care using telehealth demonstrated feasibility during the program's pilot phase, within the following interpretive parameters.

"Will the established procedures result in identification and referral of at-risk patients, and if so, at what volume?"

Building a workflow for psychiatric triage in primary care linked to extant depression screening scores and clinical judgment resulted in 68 triage encounters in 6 months. These
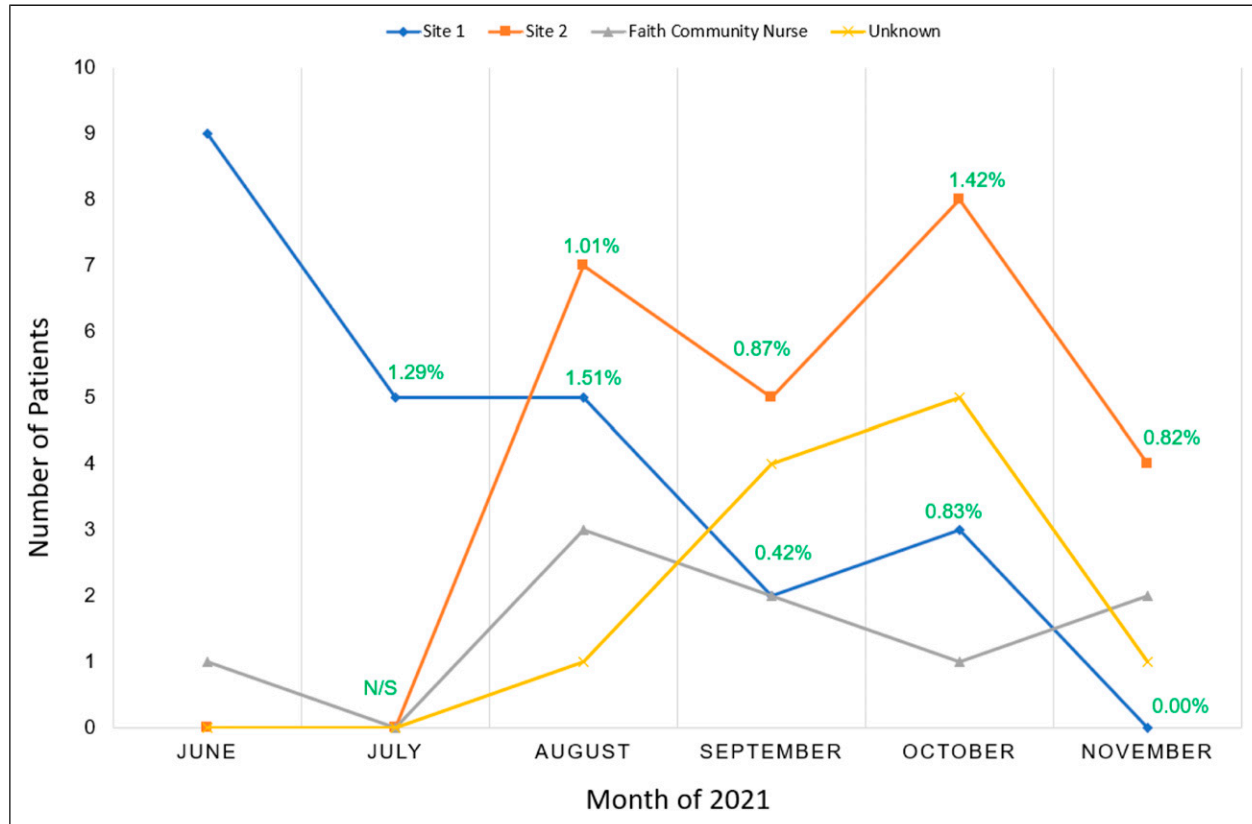
Figure 2. Patient volume by site of origin.

Table 1. Faith Net Pilot Data, June 1 to November 30, 2021.

Variable	N	%
(a) # Patients referred to the Faith Net program	**68**	**100.0**
# Referrals for psychiatric triage only	50	73.5
# Referrals for social work triage only	11	16.2
# Referrals for both psychiatric and social work triage	7	10.3
(b) Mean number of Faith Net referrals to triage per week	2.52	-
(c) # Faith Net triage encounters completed via telehealth	50	73.5
(d) # Patients referred to Faith Net who had an extant psychiatric diagnosis	2	2.9
(e) # Patients who began Faith Net program after triage (e.g., free encounters)	57	83.8
# Patients who were seen by the psychiatric APN	46	67.6
# Patients who were seen by the social worker	11	16.2
# Patients who did not progress beyond triage	11	16.2
(f) # Patients seen by the psychiatric APN who were diagnosed[a] with…	**46**	**100.0**
# Adjustment Disorder	17	37.0
# Major Depressive Disorder	7	15.2
# Generalized Anxiety Disorder	15	32.6
# Panic Disorder	5	10.9
# Post-Traumatic Stress Disorder	8	17.4
# Bipolar Disorder	5	10.9
(g) # Patients released from care by the APN as of November 30, 2021	**18**	**100.0**
# Returned to primary care with documentation of diagnosis & plan	10	55.6
# Referred to continuing or specialized therapy or care	8	44.4
# Also referred to psychiatric medication provider	1	5.6

[a]Diagnoses were not mutually exclusive (i.e., patients were assigned multiple diagnoses as indicated by the assessment).

referrals generally occurred for half-a-percent to one-and-a-half percent of the total patients seen in primary care, by site, by month, plus additional ad hoc referrals from the faith community nurse. As noted in the Introduction, these were urgent specialty cases; one provider noted that the referrals were their "most serious" cases. Such programs to facilitate rural, emergency, specialty health care have typically operated out of emergency departments as opposed to primary care.[13,14] When such programs offer psychiatric or behavioral telehealth in emergency departments, they may be an acceptable approach to linking remote patients with specialist services (e.g., it will be utilized by at least some providers).[35] That general experience appears to have been mirrored in this pilot program, although the true prevalence of mental health and behavioral disorders in this specific population is largely unknown.

"To what degree will the patients accept the use of a telehealth modality (versus in-person) for triage?"

Even when offered telehealth triage on-site in the primary care office (avoiding barriers related to device access or connectivity), more than 25% of patients requested and received in-person triage. This was unsurprising given preliminary evidence of somewhat moderate levels of comfort with telehealth among US rural older adults,[36] and other indications of reasonably high rural patient comfort with telehealth but a simultaneous preference for in-person encounters.[37] Studies to better understand rural US patients' attitudes toward telemedical services are likely important, such as a localized adaptation of the Australian discrete choice experiment[38] among rural US patients.

"What are the broad diagnostic characteristics of patients who engage with the Faith Net program (both extant diagnoses in the medical record and new diagnoses through the program)?"

Notably, only 2 of 68 patients referred to triage in the first six months had an extant psychiatric diagnosis in their medical record. However, of the 57 patients who progressed beyond initial triage, 46 were formally diagnosed with at least one psychiatric disorder. On its face, this would suggest a relatively high prevalence of untreated and/or undiagnosed behavioral and mental health care concerns in the county, though this cannot be known with any certainty solely based on our data. Given the lack of an established infrastructure for mental health diagnosis, referral, and treatment in the county prior to Faith Net being established, it is unsurprising that few patients had medical documentation indicating a formal diagnosis, even in cases where they had elevated risk indicated by the PHQ-9 instrument. In rural emergency departments, there is some evidence that telehealth can reduce the time to consult period for mental health evaluations (i.e., the period between a request and the initiation of the evaluation).[39] In the case of Faith Net, the new availability of telepsychiatric triage may instead have been the difference between an evaluation occurring vs not occurring at all.

"What is the general trajectory of follow-up care for patients who are triaged through Faith Net?"

During the feasibility study period, more than half of the patients 'graduating' the program following diagnosis were referred back to primary care for ongoing management, while the remaining group was enrolled in ongoing mental or behavioral health care. It also bears mention that some acute-presenting mental healthcare issues were linked to underlying social issues most appropriate for social work triage, such as presentation of acute anxiety *because of* a patient's unanticipated lack of transportation for critical child healthcare. In some cases (n = 11), patients were not deemed to need psychiatric triage and worked with the social worker to resolve their underlying issues.

Limitations

Due to the nature of the county (low population, rural) and size of the sample, we do not report demographic information in this paper in order to provide an extra layer of privacy protection, except to indicate that the patient population generally reflected the county composition. Further, this was a feasibility case study, so no power calculation was used to determine a minimum sample size. We believe that the information contained in this paper makes a valuable contribution to ongoing discussions of how to optimize telehealth in general, and telepsychiatry in particular. The particular lessons identified regarding feasibility likely are most applicable to US counties like this one: a small, rural, with a relatively homogenous demographic and an acute provider shortage. However, this manuscript should be interpreted in the context of all available evidence and should not be relied on to make overly broad or general inferences or descriptive claims.

Conclusion

It was feasible to integrate telemedical psychiatric and social work triage into rural primary care to address emergent or substantive mental health or behavioral health issues using the procedures we reported. Pending additional development, documentation, and replication, the Faith Net program may represent a scalable approach to facilitating on-the-spot triage of significant mental or behavioral health concerns identified in primary care in areas with provider shortages and other issues related to access to specialty health care.

Author Contributions

Conceptualization: JA, PB, DT, AT, JD; *Methodology*: All; *Validation*: JA, KF, JR; *Investigation*: All; *Resources*: JA, PB, JR; *Data Curation*: JA, DT, KF, SG; *Writing (Original Draft)*: JA; *Writing (Review & Editing)*: All; *Supervision*: JA, PB, JR; *Project Administration*: JA, PB; *Funding Acquisition*: JA, PB, DT, AT, JD.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: KF, SG, and JR are employees of the health care system that is described in this manuscript. AT is affiliated with the health care system and has a family member who was employed by the system during the pilot period.

Funding

Data Availability

The results in Table 1 and Figure 2 are the complete aggregated data available to all non-clinical authors of this study.

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