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Using Latent Class Analysis to Understand Social Worker Roles in Integrated Health Care

Brianna M. Lombardi^a, Erica L. Richman^b, and Lisa de Saxe Zerden^c

^aSchool of Social Work, University of Pittsburgh, Pittsburgh, USA; ^bCecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, Chapel Hill, USA; ^cSchool of Social Work, University of North Carolina at Chapel Hill, Chapel Hill, USA

ABSTRACT

Purpose: Social work (SW) is a profession that fulfills important roles on integrated health teams, yet there remains a lack of clarity on SW's functions. The current study sought to identify typologies of SW's roles on integrated care teams using latent class analysis (LCA).

Method: An electronic survey was developed, piloted, and administered to Masters level SW students and practitioners in integrated health care settings (N = 395) regarding weekly use of interventions. LCA was conducted to estimate latent sub-groups of respondents.

Results: Respondents reported an average of 14.6 (SD = 4.7) interventions. Five classes of SW roles were identified and varied by setting and focus. One class (13%) completed a hybrid function providing behavioral health and social care interventions.

Conclusions: Classes of SW roles on teams may reflect varying models of integrated care. A flexible SW on the team may adapt to patient and clinic needs, but increases the opportunity for role confusion.

KEYWORDS

Integrated care; latent class analysis; social work; interprofessional practice; team-based care

Integrated health care has proliferated in health systems across the United States. By bringing together providers across health disciplines, like medicine, nursing, pharmacy, and social work, integrated care ensures a coordinated and holistic approach to patient care. Integrated health care is most comprehensively defined by the World Health Organization (WHO) as “the management and delivery of health services so that clients receive a continuum of preventative and curative services, according to their needs over time and across different levels of the health system” (Waddington & Egger, 2008). Findings from a multitude of rigorously designed studies support the use of integrated health care to improve patient physical and behavioral health, as well as increase access to health services while using the least restrictive care options (Asarnow et al., 2015; Bodenheimer et al., 2002; Coventry et al., 2014; Gilbody et al., 2006; Martínez-González et al., 2014; Schöttle et al., 2013). As health care transformation continues, it is increasingly necessary for health systems to maximize the benefits of integrated care as a model to drive down costs while simultaneously improving population health (Korda & Eldridge, 2011; Mechanic, 2012).

As integrated care continues to expand, attention is now turned to the workforce needed to comprise these interprofessional teams (Black, 2017; Friedman et al., 2014). Integrated health care teams often include traditional health providers, such as physicians and nurses.

Yet to meet the complex behavioral health and social needs of patients, interprofessional teams now include other professions like pharmacists, psychologists, social workers, psychiatrists, nutritionists, and occupational therapists (Skillman et al., 2016). In some innovative models, teams incorporate newly developed professions and non-traditional health care providers – like patient health educators, public health workers, peer support specialists, and oral health providers (Chan et al., 2014; Hsiao et al., 2018; Islam et al., 2015). Expanding teams to incorporate providers who can focus on and address social risk factors is important (National Academies of Sciences, Engineering and Medicine, 2019), yet critically understudied. More research is needed to understand how to best utilize a growing workforce, such as social work, that is skilled and prepared to meet patients' whole health needs in integrated settings.

Bringing together a unique set of providers that may not traditionally work together is a challenge for training and education, as well as for management of these teams within the health system. Health system administrators are pushed to consider how the mix of providers necessary to implement interventions and services affect organizational outcomes, such as effectiveness and efficiency. In order to be more agile to changing patient needs, integrated care teams require providers with skill plasticity or the ability to perform multiple functions (Holmes et al., 2013). Skill plasticity allows a team of providers to flex as circumstances of the setting and patient population shift (Holmes et al., 2013). Although flexibility could increase opportunities for role overlap and confusion (Netting & Williams, 1996), when roles do overlap it can also provide security by ensuring patient needs do not slip through the cracks (Holmes et al., 2013). Flexibility should be balanced by clear and distinct roles to promote efficiency and to maximize the unique training and skills of individual providers (Brown et al., 2000).

Creating a flexible team of health providers is complicated by a variety of factors that are difficult to account for in workforce analyses, including payment, scope of practice, licensure regulations, and shared expertise of team members. For example, roles of the *entire* team may shift based on the membership of disciplines on the team (Donelan et al., 2019; Meyers et al., 2018). In a recent study on geriatric focused primary care settings, on teams without a social worker, physicians fulfilled more of role assessing social needs as compared to when a social worker or registered nurse (RN) was present (Donelan et al., 2019). Integrated care teams require a dynamic and flexible group of providers and is complicated by the fact that many professions are fixed within siloed roles and functions of traditional health models.

Social work is one profession with emerging roles in integrated health settings that expand beyond traditionally understood functions. The profession's flexibility in adapting to the unique skill mix of interprofessional teams is unique (Andrews et al., 2013; Fraher et al., 2018). Further, because of the profession's training in both behavioral health and social care interventions, social workers have the skill plasticity to work throughout different settings and patient populations (Fraher et al., 2018). Indeed, social workers are trained to perform interventions across a wide spectrum of patient needs (Stanhope et al., 2015). For example, social workers assess and treat behavioral health problems, coordinate plans of care across multiple systems, screen and identify social needs, and link patients with complex social services within their communities. Growing evidence supports the use of social workers on integrated care teams to assist in meeting the physical, behavioral, and social health needs of patients (Fraser et al., 2018; National Academies of Sciences, Engineering and Medicine, 2019; Steketee et al., 2017).

Evidence supports the skill-set and flexible use of interventions by social workers in integrated health settings (Fraser et al., 2018). One study of social workers in integrated settings identified that social workers implement an average of 15 *different* types of interventions each week (Fraher et al., 2018). The flexibility of social work is both an asset and a challenge, while the ability to adapt is a strength, the great variation of social workers' roles can cause confusion (Fraher et al., 2018). Although the average number of tasks social workers use is helpful to understand the breadth of skills and interventions, a count of commonly used tasks does not adequately describe the role of the profession in health care. A tally of tasks also falls short of adequately illustrating how activities and interventions likely cluster in meaningful ways that may more accurately describe social workers' roles on integrated health teams.

To better describe the variation of roles and functions social workers may fulfill on interprofessional, integrated health teams, we used latent class analysis (LCA) to develop typologies or profiles of social worker tasks and functions. LCA is a statistical method that can be used to identify significant patterns or groups amongst seemingly homogenous samples (Collins & Lanza, 2009; McCutcheon, 1987). By identifying sub-groups of social worker tasks and functions, LCA elucidates distinct groups of social workers as well as overlap between them. This provides a dynamic framework to understand social work roles – moving from counting tasks and functions of social workers – to a capture a nuanced picture of the roles social workers fill as members of integrated teams.

Current study

To understand the roles social workers fulfill on integrated care teams, this study used LCA to identify distinct types of social workers as defined by their most frequently used tasks and functions. The study was driven by the following two questions. (1) *Are there meaningful classes of social work roles in integrated health settings?*; (2) *Do classes of social work roles significantly vary by setting type or rurality?* Based on prior work, we hypothesized social workers perform at least three distinct roles within integrated health settings. We expected one group of social workers would focus primarily on health care management, a second on behavioral health interventions, and a third who split their focus between behavioral health and care management (Fraher et al., 2018; Fraser et al., 2018).

Method

Data source and sample

Data used in this study was collected via an electronic survey administered to a sample of HRSA funded Masters of Social Work (MSW) students and their field internship supervisors (also MSWs). In 2014 under the Behavioral Health Workforce Education and Training (BHWET) grant, Health Resources and Services Administration (HRSA) released a 26 USD million initiative to train and expand the behavioral health workforce, particularly for social workers trained in integrated health settings. The initiative funded 62 schools of social work across the country and these schools became the primary sampling pool for this study. Recruitment e-mails were distributed to MSW students and their field instructors via BHWET project directors at each school of social work. Of the 62 funded BHWET schools

in 2014, more than 50% of the project directors forwarded the recruitment letter. Due to this recruitment strategy, the exact number of surveys sent out is unknown. Respondents who chose to respond to the survey were randomly selected to receive the 100 USD gift card. Institutional Review Boards at collaborating institutions approved the study.

Measures

Social work tasks and functions

A list of 25 tasks and functions was developed from core competencies of integrated practice, systematic review of social work practice in integrated care settings, and experts in the field (Fraser et al., 2018; Horevitz & Manoleas, 2013). These twenty-five indicators were selected to model class membership. The accuracy and appropriateness of the tasks and functions were piloted with a small sample of social workers from one school of social work management (Fraher et al., 2018).

Characteristics of setting type

Participants responded to several questions on the details of their work or field placement location including setting type (inpatient, outpatient), setting affiliation (academic hospital system, non-academic hospital system, community agency or organization), and rurality of setting.

Characteristics of respondents

Social work respondents were asked to report self-identified gender, age, race and ethnicity, and educational background. Participants were also asked to indicate if they were a MSW student or a field instructor.

Analysis

LCA was performed using MPLUS 7.4 software (Muthén & Muthén, 2012). LCA uses an iterative approach which estimates a succession of models to identify the model with best fit to the data. Weekly use of tasks and interventions were used as indicators in the LCA model. Pre-specified fit statistics were used for class enumeration including: Akaike's information criterion (AIC); Bayesian information criterion (BIC); sample size Bayesian information criterion (SSBIC); percentage of sample within each class; and substantive interpretability of the classes. The lowest AIC, BIC, and SSBIC scores indicate better model fit (Muthén & Muthén, 2007; Nylund et al., 2007). Further, to evaluate class solutions, the average posterior probabilities and entropy were evaluated. Entropy describes the classification or separation of the classes and ranges from zero to one with higher scores indicating better class separation (Nylund et al., 2007).

After identifying the model with the best class solution, class membership was assigned based on the posterior probabilities of each participant's most probable class membership. Descriptive and bivariate analyses (chi-square) were used to characterize the classes and examine differences between the classes by setting type, patient population and need, and participant background.

Results

The total sample included 395 participants: two-thirds MSW students and one-third field supervisors. Close to 90% of the sample self-identified as female and 79% self-identified as white. The average age significantly varied by type of respondent with a mean student age of 29 (SD = 8) and field instructors mean age of 44 years (SD = 12). Social work respondents most frequently worked in large hospital settings (58%) and in urban locations (83%). Participants indicated working across inpatient (16%), outpatient (57%), and “other type settings” (e.g., school-based settings; 26%). More than 62% reported that they were physically co-located with the interprofessional team.

Table 1. Description of tasks and functions by respondent type.

Tasks or Function	MSW	Field	All	Tasks or Function	MSW	Field	All
	Students	Instructors	Respondents		Students	Instructors	Respondents
	%	%	%		%	%	%
Team-based Care**	80%	91%	83%	Relaxation Training	60%	63%	61%
Motivational	77%	91%	82%	Informal	55%	69%	60%
Interviewing**				Consultation*			
Psychoeducation	82%	79%	81%	Problem Solving	56%	69%	60%
				Therapy*			
Use Social	81%	78%	80%	Standardized	55%	65%	58%
Determinants of				Assessment			
Health to inform							
practice							
Adapt to Culture	77%	84%	80%	Patient	51%	65%	56%
				Navigation*			
Facilitate	70%	91%	77%	Cognitive	56%	55%	55%
Communication***				Behavioral			
				Therapy			
Psychosocial	73%	86%	77%	Huddle	53%	56%	54%
Assessments**							
Link with Community*	73%	85%	77%	Behavioral	52%	54%	52%
				Activation			
Use Electronic Health	71%	79%	74%	Functional	40%	45%	42%
Records				Assessment of			
				Daily Living			
				Skills			
Contribute to the Care	68%	81%	73%	Warm Hand-Off***	30%	52%	37%
Plan*							
Care Management*	65%	75%	68%	Med	28%	45%	34%
				Management**			
Treatment Team***	62%	81%	68%	SBIRT	15%	22%	18%
Patient Education	65%	74%	68%				

* $p < .05$; ** $p < .01$; *** $p < .001$; SBIRT = Screening, Brief Intervention, Referral to Treatment.

Table 2. Latent class analysis fit statistics.

Number of Classes	AIC	BIC	SSBIC
1	10108.364	10202.418	10126.273
2	9379.236	9571.262	9415.800
3	9215.646	9505.644	9270.865
4	9090.870	9478.841	9164.744
5	8982.742	9468.685	9075.272
6	8931.016	9514.931	9042.200

AIC = Akaike's information criterion; BIC = Bayesian information criterion; SSBIC = sample size Bayesian information criterion

Of the 25 tasks and functions, respondents reported using 15 at least weekly (mean = 15, SD = 5.9; Table 1). The five most frequently used tasks and functions were team-based care, motivational interviewing, psychoeducation, using the social determinants of health, and adapting interventions to the cultural identity of the client. The five least used task were SBIRT, medication management, warm hand-off, functional assessment of daily living, and behavioral activation. Task and function significantly varied by participant type.

A model with five classes demonstrated best model fit as evidenced by the BIC which is considered the best indicator for model fit (Table 2). Posterior probabilities for each class were calculated and classes are described based on the most commonly used tasks and functions (Figure 1).

Three classes emerged that were similar to hypothesized classes. The *Behavioral Health Specialist* class included 12% of the total sample (n = 44) and was defined by high use of behavioral health interventions including psychoeducation, cognitive-behavioral therapy, motivational interviewing, and problem-solving therapy. The posterior probability of social workers in the behavioral health specialist class performing care management, patient navigation, and functional assessment of daily living skills was below 0.22. Social workers in *Health Care Manager* class represented a larger portion of the sample (24% of the sample, n = 88) were unlikely to use behavioral health interventions and were very likely to use health management and care management functions. The third class the *Hybrid Social Workers*, made up 13% of the total sample (n = 49) and were likely to perform both care management and behavioral health functions.

Two classes emerged that were not hypothesized: *Diffuse Social Work with High Link Responsibility*, the largest class (40%, n = 150) and *Diffuse Social Work with High MI Use and Cultural Adaption*, the smallest class (11%, n = 41). Both of these classes were categorized as “diffuse” because the identified tasks and functions were moderately high

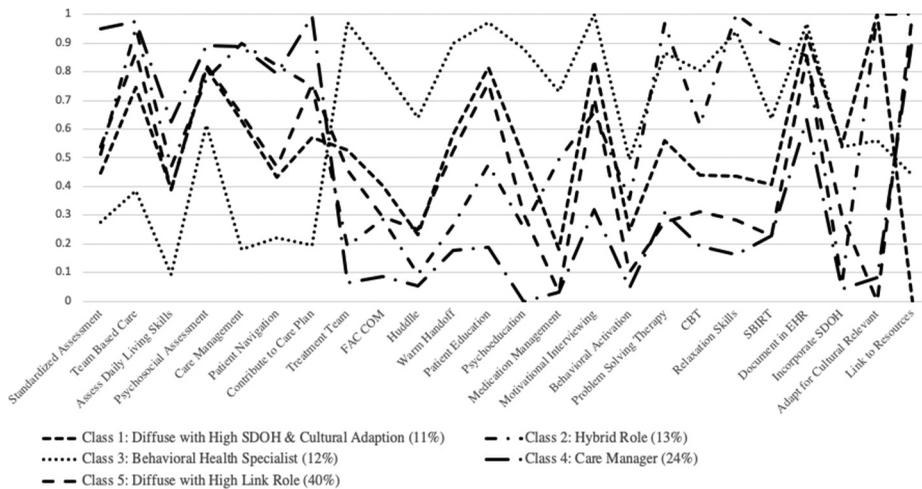


Figure 1. Lines represent the response patterns for each of the five latent classes identified in the analysis and describes the class membership. The proportion of the class that responded affirmatively to the indicator is represented by the vertical access. Note. FAC COM = Facilitate Communication; CBT = Cognitive Behavioral Therapy; EHR = Electronic Health Record; SDOH = Social Determinants of Health; SBIRT = Screening, Brief Intervention and Referral to Treatment.



Table 3. Descriptive characteristics by respondent type and location.

	Student Respondent**	Location Type**					
		Works in Hospital System**	Inpatient	Outpatient	Other Setting	Team is Co-Located*	
Total Sample	64%	58%	16%	57%	26%	62%	
Class 1: Diffuse Social Work with High MI Use and Cultural Adaption	63%	57%	12%	41%	46%	46%	
Class 2: Hybrid Social Workers	57%	76%	24%	61%	14%	71%	
Class 3: Behavioral Health Specialist	84%	38%	14%	48%	39%	50%	
Class 4: Health Care Manager	51%	69%	19%	69%	11%	70%	
Class 5: Diffuse Social Work with High Link Responsibility	71%	52%	12%	62%	26%	61%	
							83%
							83%
							86%
							86%
							81%
							83%

* $p < .05$, ** $p < .01$; *** $p < .001$

across the majority of the tasks and functions. Simply put, these social workers indicated using many tasks and functions across all 25 possible. However, the two classes were different in their performance of linking clients to resources and adapting interventions to the cultural needs of clients. All of the respondents in the first group reported linking clients to services at least weekly, whereas 0% of respondents in the second group did this.

Classes were compared to evaluate if the group varied by social worker and setting characteristics. Table 3 presents the descriptive characteristics of the five social work classes, as well as the total sample. Classes varied by MSW student as compared to field instructor. For example, 64% of the total sample was an MSW student – yet 84% of the *Behavioral Health Specialist* class identified as a student. Similarly, 58% of total sample worked for a hospital system (either academic or non-academic) and only 38% of participants reported working in a hospital system for the *Behavioral Health Specialist* role. However, 76% of the *Hybrid Social Worker* class worked in a hospital system. *Hybrid Social Workers* were also most likely to work in an inpatient setting (24%) across all of the classes. There were no significant differences between classes by geographic location of the setting (urban versus rural).

Discussion

Identifying and deploying teams of providers that can comprehensively address a patient’s physical and behavioral health, as well as social needs, is critical to improving population health and mitigating existing health disparities (National Academies of Sciences, Engineering and Medicine, 2019). Social workers are an important profession in the implementation of integrated models of care (National Academies of Sciences, Engineering and Medicine, 2019; Stanhope et al., 2015). Yet, social work as a workforce is often mischaracterized. To describe social worker roles in integrated health settings, this study used LCA to identify typologies of social workers roles, as opposed to counting skills and interventions used. Findings suggest there are five distinct classes of social workers working on integrated care teams; one class focused primarily on behavioral health interventions while the other four focused on addressing patient needs across behavioral, physical, and social issues. Because social workers roles vary by typology as demonstrated in this study, it is necessary to consider how education, models of team-based care, and financial mechanisms also need to differ across these distinct classes of social workers to support service delivery. Indeed, distinguishing between these five distinct classes is important to discern what variation of roles and functions exist and to better understand when these types of roles may be most efficaciously deployed (Figure 2). Clarity on the five classes



Figure 2. Social workers’ roles in healthcare: stratified by typology.

may help teams better understand what functions they need and how best to utilize the social worker as part of their integrated health team.

Although the *behavioral health specialist* class included only a small portion of the sample, this role is well understood within the field of social work and co-located care models. This role is well aligned with the scope of practice and reimbursement practices in most states for licensed-Master level clinical social workers to bill for psychotherapy (Beck et al., 2018). Yet, the challenge is how best to incorporate and finance social workers in the *behavioral health specialist* role in integrated care settings. Some suggest social workers should continue to bill for individual psychotherapy sessions in integrated health settings. This billing model however does not account for the time it takes to work as an inter-professional team. For example, the model does not allow for time to collaborate with other members of the integrated team including providing warm hand-offs, crisis intervention, and consultations. Further, billing individual psychotherapy sessions reflects a co-located model of care and the social worker may not be incorporated into the workflow of the entire clinic (Friedman et al., 2014).

On the other side of the spectrum of patient needs social workers may address is through the *Health Care Manager* role. The *Health Care Manager* class aligns with more traditional medical social work practice. Medical social workers have worked within health settings for more than 100 years and is a subset of practice that is well studied (Fraser et al., 2018). However, medical social work has been conflated with hospital case management with an over focus on discharge planning (Postle, 2001). *Health Care Managers* may more accurately describe the role many medical social workers fulfill today – in that they coordinate care plans, identify and address social needs, provide brief supportive counseling, and facilitate a successful transition across levels of care, such as from the hospital to the community. In the past, most medical social workers worked within hospital and inpatient settings almost exclusively. However, in this study, *Health Care Managers* spanned the continuum of inpatient to outpatient care reflecting an overall shift to move care from hospitals to the communities. Yet, this shift requires a change in payment models to support social work services in ambulatory clinics.

Social work roles identified in this study were heterogeneous but not without some overlap. This was best described by the *Hybrid Social Worker* class. It appears they flex their task and functions dependent on the needs of the clinic and patient pool using training in behavioral health interventions, as well as understanding of the implications of social needs and expertise to address them utilizing community partners. These social workers were often also more likely to be more senior clinicians with clinical social work licenses. As licensed clinical social workers they are able to bill independently, but it appears many of their daily functions fall outside of individual psychotherapy codes. Understanding ways to finance a model of care where social workers flex tasks will be needed in order to promote the ability for a social worker to fill many holes within the broader system of care.

Although in this study we were able to identify distinct classes of social worker in integrated health settings, we have a limited understanding of the factors that could be causing the role variation. From the bivariate analysis, we can see some classes of social workers are more likely to work in hospital systems and co-located settings (e.g., Hybrid Social Workers and Health Care Managers), whereas others are working in more decentralized settings and teams (e.g., Behavioral Health Specialist). This could indicate that different models of integrated health care are occurring depending on the setting you work

within which would shape social worker roles. Yet, previous work has identified that role variability could be due to team composition (Donelan et al., 2019; Meyers et al., 2018). This study did not examine if the team composition impacted the social workers role, but this could further inform how and why social workers are fulfilling distinct roles. Many factors may account for variability of social worker roles and future should evaluate if classes of roles vary on team composition, training and education, and years of experience.

This study attempted to clearly identify the variation in social worker roles in integrated care settings to articulate the possible types of social work practice that may be used. Yet, the study further highlighted that social workers have a high degree of role flexibility in the functions they fulfill on teams. This flexibility noted for social workers could easily lead to role confusion. Role confusion and ambiguity may lead to poor functioning amongst all team members and can contribute to inefficient practices (Thistlethwaite, J., Moran, M. & World Health Organization Study Group on Interprofessional Education and Collaborative Practice, 2010). Lack of clarity around the roles social workers play is not in and of itself a new finding (Ambrose-Miller & Ashcroft, 2016). In this regard, social works' flexibility is a strength, but it can also be a limitation for health systems – not maximizing social works' training and skillset because of lack of role clarity.

Recommendations for education, models of, and financing for integrated care

The classes identified highlight limitations in using a blanket approach to practice and policy recommendations for all social workers in integrated health settings. Social workers are filling very different roles – yet education, models of care, and reimbursement may not reflect the full picture – that social workers are flexibly working at the forefront of integrated health.

One of the first steps to addressing the role confusion of social work practice is to further incorporate social work into interprofessional education (IPE) and collaborative training settings. Efforts for IPE have been underway for decades (Institute of Medicine, 1972), but have become significantly more mainstream as the US healthcare system continues to transform in order to improve negative outcomes exacerbated by poor team collaboration and communication (Brandt, 2015). IPE and collaborative practice are understood as a needed component to achieve the quadruple aim of health care (Bodenheimer & Sinsky, 2014). Yet, this requires efforts at the educational level that allows for students across health disciplines to learn in interprofessionally designed courses, by faculty from other disciplines, and in purposefully structured clinical learning environments as dyads or teams. Examples of how this has been done, and the leadership role social work has played to advance IPE in medical schools and among other health professions shows early (Jones & Phillips, 2016). The expansion of IPE has been incentivized by accreditation standards within health professions (West et al., 2016) and by health system transformation focused on team-based care. Although research suggests that IPE can increase understanding of each other's profession and enhance team-based delivery of care, less is known if it can alleviate role confusion and ambiguity.

Next, health systems need to purposely select and implement models of integrated care that address both behavioral health and social needs. Many models of integrated care focus on either behavioral health *or* social needs. For example, Psychiatric Collaborative Care Management primarily focuses on screening, brief treatment, and monitoring of mild mental health systems, while chronic care management focuses on the mechanisms that

cause health relapses – like housing instability, lack of transportation, and un-coordinated care (Fraser et al., 2018; Mann et al., 2016; National Academies of Sciences, Engineering and Medicine, 2019). Yet, we know that both behavioral health and social needs impact the total health and well-being of individuals. When health systems invest in hiring social workers, it remains unclear what role they are hoping to fill if they do not have a purposeful model of integrated care. This lack of purposeful integrated care model will lead to social workers having un-defined roles and will impact how the entire team most effectively can implement care to support patients.

Finally, identifying and implementing sustainable financial models is greatly needed. Billing mechanisms and structures for integrated care remain insufficient. While the *Behavioral Health Specialist* role identified in this study has more clear billing options, health system administrators will need to consider how care management and hybrid roles can be bundled into existing care management codes or value-based models. More research is needed to understand how social workers in the diffuse social work classes get reimbursed given their wide use of tasks and functions. Some practices may rely on overhead costs to hire and utilize social workers within their clinical setting and more detailed return-on-investment studies are needed to demonstrate what if any cost-savings occurs when social workers participate as team members on integrated settings.

Needing to identify sustainable financial mechanisms to support services is not unique to social work. Many describe funding integrated care as a continued issue to maintain care (NASEM, Grazier et al., 2016; Steketee et al., 2017). CMS has developed codes for behavioral health integration and chronic care management and some private payers and state Medicaid providers have similarly adopted codes to reimburse for these types of services. Yet, research suggests the uptake of these codes has been glacially slow (Carlo et al., 2018).

Implications for health workforce research

This study used LCA to identify classes of social worker roles that were previously hypothesized but difficult to test via statistical analysis. As health teams continue to have roles that blur, systems will require members to be flexible to the needs of the setting and patient pool. As such, methods to identify the most effective provider configuration of teams is greatly needed. Methods to do this has lagged behind evidence to support teams in integrated care and research may also be bound by a traditional understanding of scope of practice of non-traditional health providers. The future of workforce research will be required to focus on the compilation of teams and prioritizing which providers can meet patient needs most effectively and efficiently. This will be difficult as much of workforce data utilizes national registries of providers of individual disciplines, not data describe the entirety of the health team. Further, some professions, like social work or community health workers, do not have a national registry of all providers or a minimum data set. To push workforce research forward both methods and data will be critical.

Limitations

Study findings should be interpreted with the accompanying limitations. Although this study used a large sample of geographically diverse social workers, the sample is a convenience group of social workers and this paper is not generalizable to all integrated

health social workers. Further, participants in this study were recruited through HRSA funded BHWET programs and may represent social workers with specialized training which may impact the response and use of identified tasks and interventions. Additionally, we can only identify class membership from indicators included in the model. There may be other tasks, activities, and interventions that social workers are commonly using that were not included that may represent additional roles and responsibilities of social workers. Furthermore, we were unable to determine if tasks were related to a priori job descriptions or job perceptions held by social workers respondents based on their training or practice orientation. Respondents may have been influenced by many factors, including years of experience on the job and the composition of their team. Lastly, LCA is considered a sample dependent method and replication of this study would assist in verifying the occurrence of classes identified.

Conclusion

Articulating and strengthening the workforce to deliver integrated health care will be critically important to implementing the model and meeting patient needs. Social work brings a skill set needed to strengthen integrated health care. Understanding the distinct roles of social workers on integrated teams can help systems articulate which type of social work practice may be most beneficial and identify financial models to successfully sustain the integrated setting. Health policy is continuing to undergo transformation and integrated models of care continue to take hold. To respond, a flexible workforce can help mitigate the complexities seen in health care wherein people have social, physical, and behavioral health needs.

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Conflicts of interest

The authors have no conflicts of interest to disclose.

References

- Ambrose-Miller, W., & Ashcroft, R. (2016). Challenges faced by social workers as members of interprofessional collaborative health care teams. *Health & Social Work, 41*(2), 101–109. <https://doi.org/10.1093/hsw/hlw006>
- Andrews, C. M., Darnell, J. S., McBride, T. D., & Gehlert, S. (2013). Social work and implementation of the affordable care act. *Health & Social Work, 38*(2), 67–71. <https://doi.org/10.1093/hsw/hlt002>

- Asarnow, J. R., Rozenman, M., Wiblin, J., & Zeltzer, L. (2015). Integrated medical-behavioral care compared with usual primary care for child and adolescent behavioral health: A meta-analysis. *JAMA Pediatrics*, 169(10), 929–937. <https://doi.org/10.1001/jamapediatrics.2015.1141>
- Beck, A. J., Page, C., Buche, J., Rittman, D., & Gaiser, M. (2018). *Scopes of practice and reimbursement patterns of addiction counselors, community health workers, and peer recovery specialists in the behavioral health workforce*. Behavioral Health Workforce Research Center, University of Michigan School of Public Health. <https://behavioralhealthworkforce.org/wp-content/uploads/2019/06/Y3-FA3-P1-SOP-Full-Report-Updated-6.5.19.pdf>
- Black, D. R. (2017). Preparing the workforce for integrated healthcare: A systematic review. *Social Work in Health Care*, 56(10), 914–942. <https://doi.org/10.1080/00981389.2017.1371098>
- Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the patient requires care of the provider. *The Annals of Family Medicine*, 12(6), 573–576. <https://doi.org/10.1370/afm.1713>
- Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. *JAMA*, 288(14), 1775–1779. <https://doi.org/10.1001/jama.288.14.1775>
- Brandt, B. F. (2015). Interprofessional education and collaborative practice: Welcome to the “new” forty-year-old field. *The Advisor*, 9–17. <http://nexusipe-resource-exchange.s3.amazonaws.com/IPECP%20-%20Welcome%20to%20the%20New%2040-Year-Old%20Field%20-%20Brandt%3B%20The%20Advisor.pdf>
- Brown, B., Crawford, P., & Darongkamas, J. (2000). Blurred roles and permeable boundaries: The experience of multidisciplinary working in community mental health. *Health & Social Care in the Community*, 8(6), 425–435. <https://doi.org/10.1046/j.1365-2524.2000.00268.x>
- Carlo, A. D., Unützer, J., Ratzliff, A. D., & Cerimele, J. M. (2018). Financing for collaborative care—A narrative review. *Current Treatment Options in Psychiatry*, 5(3), 334–344. <https://doi.org/10.1007/s40501-018-0150-4>
- Chan, J. C., Sui, Y., Oldenburg, B., Zhang, Y., Chung, H. H., Goggins, W., Au, S., Brown, N., Ozaki, R., Wong, R. Y. M., Ko, G. T., & Fisher, E. (2014). Effects of telephone-based peer support in patients with type 2 diabetes mellitus receiving integrated care: A randomized clinical trial. *JAMA Internal Medicine*, 174(6), 972–981. <https://doi.org/10.1001/jamainternmed.2014.655>
- Collins, L. M., & Lanza, S. T. (2009). *Latent class and latent transition analysis: With applications in the social, behavioral, and health sciences*. John Wiley & Sons.
- Coventry, P. A., Hudson, J. L., Kontopantelis, E., Archer, J., Richards, D. A., Gilbody, S., Lovell, K., Dickens, C., Gask, L., Waheed, W., & Bower, P. (2014). Characteristics of effective collaborative care for treatment of depression: A systematic review and meta-regression of 74 randomised controlled trials. *PLoS ONE*, 9(9), e108114. <https://doi.org/10.1371/journal.pone.0108114>
- Donelan, K., Chang, Y., Berrett-Abebe, J., Spetz, J., Auerbach, D. I., Norman, L., & Buerhaus, P. I. (2019). Care management for older adults: The roles of nurses, social workers, and physicians. *Health Affairs*, 38(6), 941–949. <https://doi.org/10.1377/hlthaff.2019.00030>
- Fraher, E. P., Richman, E. L., De Saxe Zerden, L., & Lombardi, B. (2018). Social work student and practitioner roles in integrated care settings. *American Journal of Preventive Medicine*, 54(6), S281–S289. <https://doi.org/10.1016/j.amepre.2018.01.046>
- Fraser, M. W., Lombardi, B. M., Wu, S., De Saxe Zerden, L., Richman, E. L., & Fraher, E. P. (2018). Integrated primary care and social work: A systematic review. *Journal of the Society for Social Work and Research*, 9(2), 175–215. <https://doi.org/10.1086/697567>
- Friedman, A., Hahn, K. A., Etz, R., Rehwinkel-Morfe, A. M., Miller, W. L., Nutting, P. A., Jaén, C. R., Shaw, E. K., & Crabtree, B. F. (2014). A typology of primary care workforce innovations in the United States since 2000. *Medical Care*, 52(2), 101–111. <https://doi.org/10.1097/MLR.000000000000043>
- Gilbody, S., Bower, P., Fletcher, J., Richards, D., & Sutton, A. J. (2006). Collaborative care for depression: A cumulative meta-analysis and review of longer-term outcomes. *Archives of Internal Medicine*, 166(21), 2314–2321. <https://doi.org/10.1001/archinte.166.21.2314>
- Grazier, K. L., Smiley, M. L., & Bondalapati, K. S. (2016). Overcoming barriers to integrating behavioral health and primary care services. *Journal of Primary Care & Community Health*, 7(4), 242–248. <https://doi.org/10.1177/2150131916656455>

- Holmes, G. M., Morrison, M., Pathman, D. E., & Fraher, E. (2013). The contribution of “plasticity” to modeling how a community’s need for health care services can be met by different configurations of physicians. *Academic Medicine*, 88(12), 1877–1882. <https://doi.org/10.1097/ACM.000000000000026>
- Horevitz, E., & Manoleas, P. (2013). Professional competencies and training needs of professional social workers in integrated behavioral health in primary care. *Social Work in Health Care*, 52(8), 752–787. <https://doi.org/10.1080/00981389.2013.791362>
- Hsiao, Y. L., Bass, E. B., Wu, A. W., Richardson, M. B., Deuschendorf, A., Brotman, D. J., Bellantoni, M., Howell, E. E., Everett, A., Hickman, D., Purnell, L., Zollinger, R., Sylvester, C., Lyketsos, C. G., Dunbar, L., & Berkowitz, S. A. (2018). Implementation of a comprehensive program to improve coordination of care in an urban academic health care system. *Journal of Health Organization and Management*, 32(5), 638–657. <https://doi.org/10.1108/JHOM-09-2017-0228>
- Institute of Medicine. (1972). *Educating for the health team: Report of the conference on the interrelationships of educational programs for health professionals, October 2- 3, 1972*. National Academy of Sciences.
- Islam, N., Nadkarni, S. K., Zahn, D., Skillman, M., Kwon, S. C., & Trinh-Shevrin, C. (2015). Integrating community health workers within Patient Protection and Affordable Care Act implementation. *Journal of Public Health Management and Practice*, 21(1), 42. <https://doi.org/10.1097/PHH.000000000000084>
- Jones, B., & Phillips, F. (2016). Social work and interprofessional education in health care: A call for continued leadership. *Journal of Social Work Education*, 52(1), 18–29. <https://doi.org/10.1080/10437797.2016.1112629>
- Korda, H., & Eldridge, G. N. (2011). Payment incentives and integrated care delivery: Levers for health system reform and cost containment. *Inquiry: The Journal of Health Care Organization, Provision, and Financing*, 48(4), 277–287. https://doi.org/10.5034/inquiryjrn1_48.04.01
- Mann, C. C., Golden, J. H., Cronk, N. J., Gale, J. K., Hogan, T., & Washington, K. T. (2016). Social workers as behavioral health consultants in the primary care clinic. *Health & Social Work*, 41(3), 196–200. <https://doi.org/10.1093/hsw/hlw027>
- Martínez-González, N. A., Berchtold, P., Ullman, K., Busato, A., & Egger, M. (2014). Integrated care programmes for adults with chronic conditions: A meta-review. *International Journal for Quality in Health Care*, 26(5), 561–570. <https://doi.org/10.1093/intqhc/mzu071>
- McCutcheon, A. L. (1987). *Latent class analysis*. Sage.
- Mechanic, D. (2012). Seizing opportunities under the Affordable Care Act for transforming the mental and behavioral health system. *Health Affairs*, 31(2), 376–382. <https://doi.org/10.1377/hlthaff.2011.0623>
- Meyers, D., LeRoy, L., Bailit, M., Schaefer, J., Wagner, E., & Zhan, C. (2018). Workforce configurations to provide high-quality, comprehensive primary care: A mixed-method exploration of staffing for four types of primary care practices. *Journal of General Internal Medicine*, 33(10), 1774–1779. <https://doi.org/10.1007/s11606-018-4530-7>
- Muthén, L. K., & Muthén, B. O. (2007). *Mplus statistical software*. Muthén & Muthén.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus user’s guide* (7th ed.). Muthén & Muthén.
- National Academies of Sciences, Engineering, and Medicine. (2019). *Integrating social care into the delivery of health care: Moving upstream to improve the nation’s health*. National Academies Press.
- Netting, F. E., & Williams, F. G. (1996). Case manager-physician collaboration: Implications for professional identity, roles, and relationships. *Health & Social Work*, 21(3), 216–224. <https://doi.org/10.1093/hsw/21.3.216>
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(4), 535–569. <https://doi.org/10.1080/10705510701575396>
- Postle, K. (2001). The social work side is disappearing. I guess it started with us being called care managers?. *Practice*, 13(1), 13–26. <https://doi.org/10.1080/09503150108415468>
- Schöttle, D., Karow, A., Schimmelmann, B. G., & Lambert, M. (2013). Integrated care in patients with schizophrenia: Results of trials published between 2011 and 2013 focusing on effectiveness and

- efficiency. *Current Opinion in Psychiatry*, 26(4), 384–408. <https://doi.org/10.1097/YCO.0b013e328361ec3b>
- Skillman, S. M., Snyder, C. R., Frogner, B. K., & Patterson, D. G. (2016). *The behavioral health workforce needed for integration with primary care*. Center for Health Workforce Studies, University of Washington.
- Stanhope, V., Videka, L., Thorning, H., & McKay, M. (2015). Moving toward integrated health: An opportunity for social work. *Social Work in Health Care*, 54(5), 383–407. <https://doi.org/10.1080/00981389.2015.1025122>
- Steketee, G., Ross, A. M., & Wachman, M. K. (2017). Health outcomes and costs of social work services: A systematic review. *American Journal of Public Health*, 107(S3), S256–S266. <https://doi.org/10.2105/AJPH.2017.304004>
- Thistlethwaite, J., Moran, M., & World Health Organization Study Group on Interprofessional Education and Collaborative Practice. (2010). Learning outcomes for interprofessional education (IPE): Literature review and synthesis. *Journal of Interprofessional Care*, 24(5), 503–513. <https://doi.org/10.3109/13561820.2010.483366>
- Waddington, C., & Egger, D. (2008). *Integrated health services—what and why*. World Health Organization. https://www.who.int/healthsystems/technical_brief_final.pdf
- West, C., Graham, L., Palmer, R. T., Miller, M. F., Thayer, E. K., Stuber, M. L., Awdishu, L., Umoren, R. A., Wamsley, M. A., Nelson, E. A., Joo, P. A., Tysinger, J. W., George, P., & Carney, P. A. (2016). Implementation of interprofessional education (IPE) in 16 US medical schools: Common practices, barriers and facilitators. *Journal of Interprofessional Education & Practice*, 4, 41–49. <https://doi.org/10.1016/j.xjep.2016.05.002>