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Social Determinants of Health: The Promise, Opportunity, and Challenges

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Abstract

Social determinants of health (SDoH) — nonclinical factors such as housing instability, food insecurity, employment status, and education — account for approximately 80% of health outcomes, influencing conditions ranging from acute illness to chronic disease. Despite their importance, most healthcare organizations lack formal governance structures to oversee the collection, integration, and use of SDoH data. In response to new accreditation requirements from The Joint Commission mandating SDoH screening and follow-up, this study explores strategies for integrating SDoH into clinical workflows to advance equity and holistic care. Using a qualitative descriptive design, we conducted semi-structured interviews with 4 healthcare stakeholders, including clinicians, administrators, and data specialists, recruited through purposive sampling. Interviews were conducted via secure virtual platforms, recorded, and transcribed verbatim. Data were coded inductively and thematically analyzed to identify common patterns and actionable insights. Findings highlight the need for screening tools that align with clinical workflows and staff responsibilities, supported by leadership engagement and clear implementation protocols. Standardized documentation practices, including structured coding systems, are essential for interoperability and data utility but require training, institutional alignment, and incentivization. Participants also emphasized the growing importance of patient-driven data collection, which empowers patients to actively contribute to SDoH screening and ensures data relevance and usability. Ultimately, the meaningful integration of SDoH data depends on blending technological solutions with human-centered approaches to improve care outcomes and promote health equity.

Keywords: social determinants of health, electronic health records, qualitative research, screening tools, workflow integration, patient engagement, health equity

1. Introduction

Social determinants of health (SDoH)—including housing stability, food security, transportation access, education, and employment—shape clinical risk, care experiences, and outcomes across populations. Health systems increasingly recognize that systematically capturing and acting on SDoH is essential for equity and value-based care.

Yet routine integration remains uneven. Common barriers include workflow burden and unclear role delineation, inconsistent use of structured codes (e.g., Z-codes, SNOMED CT, LOINC), limited interoperability across systems and community partners, and weak incentive alignment. As a result, SDoH information is collected inconsistently, under-documented, and underutilized for care decisions and reporting (Li & Mowery et al, 2024).

To meet new policy requirements and, more importantly, deliver meaningful improvements in patient health, healthcare systems must move beyond passive data collection. There is a critical need for scalable, ethical, and interoperable models that embed SDOH data into care delivery, decision-making, and cross-sector collaboration. Without this transformation, health systems will continue to miss key opportunities to address root causes of poor health—particularly among vulnerable and historically underserved populations.

The integration of SDoH into Electronic EHRs is widely recognized as a strategic priority for addressing population health and reducing health inequities. As healthcare systems increasingly adopt digital infrastructures, the opportunity to incorporate non-clinical data—such as housing status, education, and access to transportation—has garnered significant attention from clinicians, researchers, and policymakers. Yet, despite advances in technology and policy support, implementation challenges persist across institutions (Cantor & Thorpe, 2018; Gottlieb et al., 2015).

Based on these concerns and the background described above, the problem for this study is as follows:

> Despite growing recognition of their value, SDoH remain inconsistently and insufficiently integrated into EHR systems across healthcare settings. Evidence shows that variation in documentation practices

> and limited use of standardized coding frameworks impede the consistent capture of actionable SDoH data (Ali et al., 2023). Furthermore, underutilization of coding tools such as Z-codes reflects a broader failure to operationalize SDoH data collection in routine care workflows (Newton et al., 2023). These shortcomings compromise the potential of data-driven interventions to advance equitable care delivery.

Beginning in 2024, the Centers for Medicare & Medicaid Services (CMS) required hospitals to screen all inpatients for five core social determinants of health (SDoH): food insecurity, housing instability, transportation needs, utility difficulties, and interpersonal safety. This federal mandate, along with updated Joint Commission accreditation standards, reflects a growing consensus that health systems must address non-clinical factors to improve health outcomes and advance health equity.

Despite these regulatory shifts, most healthcare organizations remain underprepared to meet the full scope of SDoH integration. Although nearly 80% of institutions report collecting some form of SDoH data, a national survey by the American Health Information Management Association (AHIMA) reveals widespread challenges in standardizing data, integrating it into clinical workflows, ensuring interoperability with community resources, and training staff to engage patients in culturally respectful ways. Without cohesive strategies, much of this data remains underutilized or siloed—undermining its potential to inform care and reduce disparities.

This gap is particularly problematic given the well-documented impact of SDoH on chronic conditions such as cardiovascular disease. As highlighted in a review published by the *Journal of the American College of Cardiology*, social risk factors—including economic instability, education level, and neighborhood conditions—can significantly influence disease onset, management, and outcomes. These non-medical factors account for up to 55% of health outcomes, underscoring that traditional clinical interventions alone are insufficient to achieve optimal or equitable care.

In addition, key gaps persist in how frontline roles, governance structures, and patient-initiated tools fit together in real clinical environments. Specifically, organizations lack clarity on who screens and who acts, how SDoH data flows into decision support and referral pathways, and how analytics and safety programs should incorporate social risk information.

This study examines how SDoH screening and documentation are integrated into EHR-supported workflows and what organizational, technical, and patient-engagement factors facilitate or impede implementation. We ask: (1) how do frontline teams collect, document, and follow up on SDoH needs within existing workflows? (2) what governance and incentive structures support consistent, interoperable documentation and use? and (3) how might patient-initiated data collection improve feasibility, trust, and impact?

2. Literature Review

As noted in the introduction to this study, SDoH have long been recognized as fundamental drivers of health outcomes. These include non-medical factors such as socioeconomic status, education, neighborhood and physical environment, employment, social support networks, and access to healthcare. The growing body of evidence linking SDoH to disparate health outcomes has galvanized interest among healthcare providers, policymakers, and public health professionals in integrating these determinants into clinical care systems. EHRs have emerged as a key infrastructure through which SDoH data can be systematically collected, documented, and used to inform patient care, population health strategies, and value-based care initiatives. Vo et al. (2023) conducted an ecological analysis examining how various social determinants—such as income inequality, education level, housing conditions, and food access—correlate with key health outcomes at the population level. Their findings demonstrated significant associations between adverse SDoH indicators and increased rates of chronic illness, hospitalization, and premature mortality. The authors emphasized that SDoH not only shape individual risk but also contribute to community-level disparities in health system burden and performance. These findings underscore the need for health systems to systematically identify and address social risks through EHR-integrated interventions. As Vo et al. concluded, “Improving SDoH at the community level is imperative to enhance overall population health outcomes” (p. 10), reinforcing the urgency of embedding SDoH data into clinical infrastructure for proactive and equitable care planning.

However, integrating SDoH into EHRs is a multifaceted challenge that involves technological, ethical, clinical, and social considerations. Current efforts to address these challenges vary in scope and effectiveness across healthcare systems. A comprehensive understanding of the state of research is needed to inform best practices and policy decisions. This literature review synthesizes findings from peer-reviewed articles and organizes the discussion into four central themes: (1) screening tools and workflow integration; (2) data standardization, documentation, and interoperability; (3) artificial intelligence (AI), natural language processing (NLP), and unstructured data analysis; and (4) patient perspectives, health equity, and implementation barriers.

SDoH Screening Tools and Clinical Workflow Integration

Effective integration of SDoH into clinical workflows begins with the use of reliable screening tools. These tools must not only capture relevant social data but also fit seamlessly into existing clinical operations to minimize burden on staff and patients.

Patel et al. (2023) conducted a qualitative case analysis of three distinct health system projects integrating SDoH into EHRs. From this, they developed four “personas” that reflect the roles and mindsets of stakeholders involved in implementation, such as clinical champions, IT leads, and social service coordinators. The study highlighted that while technological capacity existed across sites, barriers stemmed from organizational misalignment, unclear roles, and differing expectations between clinical and administrative stakeholders. Notably, the personas illustrated that successful implementation required not just technology and screening tools, but also sustained collaboration between clinical, technical, and operational teams. These findings reinforce the importance of understanding human factors in workflow integration and the necessity of aligning tools with institutional culture and frontline realities. The authors argue that technical solutions alone are insufficient; meaningful adoption depends on relational trust, role clarity, and leadership engagement.

Berkowitz et al. (2021) examined the feasibility of implementing a structured SDoH screening tool within ambulatory care settings and found that patients were generally receptive to answering questions about their social needs when the purpose was clearly communicated. Their findings suggested that patients appreciated the opportunity to share challenges related to housing, food access, or employment when they believed the information would lead to meaningful support. However, despite high patient receptivity, the study also identified significant operational challenges related to integrating the screening tool into existing clinical workflows. These included disruptions to visit flow, uncertainty among staff about who should administer the tool, and lack of clarity around how to respond to positive screenings. Stewart de Ramirez et al. (2022) further explored this issue by comparing active screening approaches—where clinicians or staff ask questions directly—to passive methods such as digital self-administered surveys. Their results indicated that both approaches can be effective, but their success depends heavily on the clinical environment and population served. For example, active screening may foster trust in high-touch settings, while passive methods might offer greater privacy and efficiency in high-volume clinics. Together, these studies underscore that SDoH screening is not a one-size-fits-all endeavor; instead, it requires flexible strategies tailored to organizational capacity, staff readiness, and patient preferences to be both effective and sustainable.

Embedding SDoH screening into EHR-integrated clinical decision support tools allows for real-time identification of needs and more effective referral processes (Cantor & Thorpe, 2018; Fiori et al., 2021). Training and workflow alignment are equally important, with studies indicating that successful adoption requires engaging frontline staff and providing them with both the technical skills and the clarity on how SDoH data will be used (Ashe et al., 2023; Berkowitz et al., 2021; Stewart de Ramirez et al., 2022).

These efforts must be accompanied by systematic evaluation, using both quantitative and qualitative data, to determine whether changes in screening practice result in measurable improvements to care coordination, reduced readmissions, and better patient outcomes (Ashe et al., 2023; Rangachari & Thapa, 2025). Such evaluation should not be limited to counting the number of screenings completed or referrals generated; rather, it should also assess the timeliness, appropriateness, and effectiveness of the interventions that follow a positive screen. For example, linking SDoH data to hospital readmission metrics can identify whether addressing food insecurity or housing instability reduces preventable acute care utilization, while patient-reported outcome measures (PROMs) can capture improvements in quality of life and functional status that are not reflected in claims data. Qualitative feedback from both patients and care teams is equally important, as it can reveal barriers—such as stigma, mistrust, or insufficient resource availability—that hinder the translation of screening into meaningful support (Berkowitz et al., 2021; Stewart de Ramirez et al., 2022). By embedding these evaluation mechanisms into routine quality improvement cycles, health systems can iteratively refine workflows, target resources more effectively, and strengthen the evidence base for sustained SDoH integration in value-based care models.

In a qualitative study exploring the perspectives of both patients and care team members, Rudisill et al. (2023) found that the success of SDoH screening in primary care settings was closely tied to how well the purpose of the screening was communicated and whether patients believed resources would be available to address their needs. As they noted, “Participants emphasized that communication about the purpose of screening and the availability of resources to address social needs was essential for buy-in and follow-through” (p. 6). Without clear messaging and actionable next steps, patients and staff alike expressed skepticism about the value of collecting social risk information. This points to a broader theme: SDoH screening cannot be viewed as a procedural checkbox but must be embedded within a supportive, trust-building process that ensures identified needs are met with responsive care pathways.

Fiori et al. (2021) echoed these findings in their evaluation of a large health system’s effort to implement SDoH screening at scale. They emphasized that, “a health system-wide implementation required sustained leadership support, iterative workflow optimization, and frontline engagement to normalize social needs screening” (p. e053633). Their study highlighted how early enthusiasm for screening can quickly wane without consistent leadership backing and regular refinement of workflows based on frontline feedback. For example, when staff were not given sufficient training or when the documentation tools were cumbersome, screening rates declined. Conversely, when leadership prioritized the initiative, allocated dedicated staff support, and provided mechanisms for incorporating screening into existing workflows, adoption improved. These writings reinforce the idea that successful integration of SDoH into clinical care requires alignment across multiple levels of the organization—including strategic leadership, clinical operations, and front-line staff engagement—rather than relying solely on the introduction of a screening tool itself.

Data Standardization, Documentation, and Interoperability

One of the most persistent barriers to effective use of SDoH data is the lack of standardization in how the information is documented and shared across health systems. Standardized coding systems, such as ICD-10 Z-codes, SNOMED CT (Systematized Nomenclature of Medicine—Clinical Terms), and LOINC (Logical Observation Identifiers Names and Codes), provide essential frameworks for categorizing and documenting social risk factors in a structured and interoperable manner. These coding systems enable healthcare providers to record non-medical determinants like housing instability, employment status, or access to transportation in a way that can be shared, aggregated, and analyzed across health systems. However, despite their technical capacity, the widespread adoption of these systems for SDoH remains limited due to inconsistent training, workflow misalignment, lack of incentives, and variability in EHR integration.

Cantor and Thorpe (2018) called for greater policy incentives to support the adoption of standard documentation practices for SDoH, emphasizing that without structural motivators, efforts to integrate SDoH into EHRs are likely to remain inconsistent and fragmented. They argued that the voluntary nature of SDoH coding—combined with limited regulatory pressure and variable institutional priorities—creates an environment in which providers lack clear incentives to prioritize these data. Similarly, Gottlieb et al. (2015) maintained that meaningful, upstream integration of SDoH into EHR systems would require more than technological capacity; it would necessitate financial reimbursement models and supportive workflows that encourage consistent, routine documentation. Their analysis underscored that clinicians often face time constraints and competing demands during patient visits, and without compensation or streamlined systems, documenting non-clinical factors may fall by the wayside. Both studies converge on the idea that effective SDoH integration is not solely a technical issue but a systemic one—demanding coordinated efforts in policy, payment reform,

Ali et al. (2023) examined how community health centers document SDoH and found significant variability in data collection practices, both across and within institutions. The study revealed that while some clinics embedded standardized fields within EHRs, others relied on unstructured notes, which limited consistency and hindered data sharing. Newton et al. (2023) further underscored this issue, finding that fewer than 3% of eligible encounters included Z-code documentation—specific ICD-10-CM codes used to capture non-medical factors such as housing instability, unemployment, or literacy challenges. As a subset of the International Classification of Diseases (ICD) system, Z-codes are designed to identify social and environmental conditions that influence health but are frequently overlooked in routine care due to low clinician awareness, limited EHR prompts, and unclear reimbursement pathways. Together, these studies highlight a critical disconnect between the recognized importance of SDoH and the current infrastructure for documenting them in a structured, actionable format.

As Hendricks-Sturrup et al. (2024) noted, “Providers’ low rates of Z code use may be attributed to concerns about workflow disruptions, EHR usability, lack of training, or perceptions about the clinical utility of these codes” (p. 127). Similarly, Yang et al. (2022) wrote, “Our study demonstrates that the implementation of Z codes remains sparse across the state, despite their potential for improving health equity and coordination of care” (p. 2).

NLP, AI, and Unstructured Data Analysis

Given the persistent limitations of structured data entry—such as incomplete fields, inconsistent use of Z-codes, and limited clinician time—there is growing momentum behind the use of artificial intelligence (AI) and natural language processing (NLP) to extract SDoH information from unstructured clinical notes. These technologies offer the ability to identify social risks that may be described informally or narratively by clinicians but are not coded in discrete data fields. Narrative text, such as progress notes and discharge summaries, often contains context-rich observations about housing instability, food insecurity, social support, or unsafe environments that are rarely captured through checkboxes or billing codes. Thus, leveraging NLP can fill critical gaps in structured EHR data and create a more comprehensive understanding of a patient's social context.

Xiao et al. (2023) demonstrated that large language models (LLMs) outperform traditional rule-based and keyword-matching methods in identifying complex social needs embedded in clinical narratives. Their findings suggest that advanced models can capture subtle references to social risks that might otherwise go undetected, such as indirect mentions of transportation barriers or caregiving burdens. Similarly, Feller et al. (2020) emphasized the importance of combining structured and unstructured data sources to enhance care delivery and risk stratification, noting that such hybrid approaches provide a fuller picture of patient needs. Patra et al. (2021) affirmed this by stating, “NLP approaches are critical for identifying SDoH-related information, which is often recorded in free-text clinical notes rather than structured EHR fields” (p. 1), underscoring the clinical reality that much of what providers observe about a patient’s life circumstances is never formally coded.

In a real-world validation study, Mehta et al. (2023) found that "rule-based NLP methods extracted social risk factors with moderate to high precision and captured significantly more cases than ICD Z codes alone" (p. e46159). This underscores the practical value of NLP: while Z-codes are available in theory, they are underused in practice, and NLP can uncover information that would otherwise remain hidden and analytically inaccessible. The integration of such tools into clinical decision support systems also has the potential to automatically flag social risk indicators and prompt appropriate referrals or interventions. However, these benefits hinge on careful validation, transparency of algorithms, and clinician trust. Without clear auditability and clinician input into model design, there is a risk that AI-based insights will be disregarded or misapplied. Additionally, models must be trained on representative and diverse data sources to avoid reinforcing existing biases in healthcare delivery.

Altogether, the literature demonstrates that AI and NLP offer a transformative opportunity to expand the scope of SDoH data collection, improve documentation quality, and support more personalized, equitable care. Their value lies not only in technical innovation but in their potential to operationalize long-overlooked aspects of patient health and well-being. As health systems increasingly seek to integrate social care with medical care, unstructured data analysis may become essential to understanding and addressing the full range of factors influencing health outcomes.

Patient Perspectives, Health Equity, and Implementation Barriers

Despite technological progress, patient-centered considerations remain essential. Many patients are willing to disclose social needs, but only when assured of privacy, actionability, and non-judgmental care. Disclosure of sensitive information such as housing instability, food insecurity, or exposure to violence often involves vulnerability and a significant degree of trust. Patients are more receptive to SDoH screening when it is framed as a routine part of care and when clinicians explain how the information will be used to support rather than penalize them (Tully et al., 2022). Trust-building becomes particularly critical for individuals from historically marginalized communities who may carry prior experiences of discrimination or neglect within health systems.

Caicedo et al. (2024) found that patients were more likely to engage with SDoH assessments when providers followed up with tangible resources or referrals, reinforcing that screening alone is insufficient without follow-through. In addition, White et al. (2023) emphasize that community engagement in the design of screening initiatives can mitigate concerns about stigma and promote a sense of shared ownership in the process. These findings collectively indicate that successful SDoH integration must prioritize clear communication, culturally competent interactions, and visible pathways from data collection to support, ensuring that patients feel heard, respected, and served.

Arroyave Caicedo et al. (2023) noted that stigma and data misuse are central patient concerns, particularly when social risk data are collected without clear explanation of how the information will be used. Patients expressed fear that disclosing needs related to housing, food insecurity, or substance use might result in judgment or unintended consequences, such as reduced access to care or insurance discrimination. These concerns were especially pronounced among populations with historical experiences of medical marginalization. Medrano et al. (2023) underscored that equity must be embedded not only in data collection tools but also in the structural design of interventions, workflows, and communication strategies. Without this intentionality, SDoH screening efforts risk reinforcing rather than dismantling systemic disparities. Their findings emphasized the importance of trauma-informed, culturally sensitive approaches that recognize the power dynamics inherent in clinical encounters. Moreover, both studies suggest that patient trust is more likely to be fostered when data collection is accompanied by visible, actionable support and when patients are informed of their rights, privacy protections, and the intended uses of their information. These insights highlight the need for ethical safeguards, community partnership, and meaningful co-design in developing equitable SDoH integration strategies.

Chelak and Checoloe (2023) conducted a narrative review emphasizing the foundational role that SDoH play in achieving health equity. Drawing from a wide array of global and national data, the authors articulate that factors such as income, education, housing stability, employment, transportation access, and environmental safety shape not only individual health outcomes but also the broader patterns of population-level disparities. They argue that these determinants should be addressed not as peripheral issues, but as central components of any strategy aimed at reducing inequities in healthcare delivery. The authors call for an expansion of health system responsibility beyond clinical care, urging integration with public health, housing, education, and labor systems to address these root causes. Furthermore, they also advocate for policy reforms that embed equity as a core operational principle across health systems. As they state, "Without a systematic response to the social determinants of health, efforts to promote health equality will remain fragmented and insufficient" (p. 5).

Tully et al. (2022) stated, "Patients expressed support for SDoH screening when it was framed as routine care and paired with resources to meet identified needs" (p. 892). Despite technological progress, patient-centered considerations remain essential. Many patients are willing to disclose social needs, but only when assured of privacy, actionability, and nonjudgmental care. Disclosure of sensitive information such as housing instability, food insecurity, or interpersonal stress requires trust and confidence that the information will not be misused. Tully et al. (2022) reported that "patients expressed support for SDoH screening when it was framed as routine care and paired with resources to meet identified needs" (p. 892), emphasizing the importance of linkage to support rather than mere data collection.

Caicedo et al. (2024) reinforced this by noting, "integration of information on SDOH into the EHR appears acceptable to patients" and suggesting that patients perceive it positively when they are informed about the rationale for data collection and confident that providers will connect them to relevant services. These details confirm that successful SDoH implementation strategies must combine transparency, follow-through mechanisms, and culturally sensitive, respectful communication to foster trust and engagement among diverse patient populations.

Summary of the Literature Review

The existing literature makes it clear that integrating SDoH into EHRs is a critical but underdeveloped component of equitable healthcare delivery. Numerous studies demonstrate that screening tools can be effectively implemented in clinical workflows, especially when supported by leadership and tailored to clinical contexts (Fiori et al., 2021; Rudisill et al., 2023). Yet even when social needs are identified, the translation of this information into structured EHR data remains inconsistent and often limited to early-adopter institutions (Ali et al., 2023). These gaps suggest that while awareness and tools are improving, meaningful integration into health system infrastructure remains incomplete.

Standardization and documentation challenges further constrain the usefulness of SDoH data. As Hendricks-Sturrup et al. (2024) note, low utilization of ICD-10 Z-codes is linked to provider uncertainty, EHR usability barriers, and a lack of institutional incentives. Yang et al. (2022) add that demographic and institutional variation in Z-code use may reinforce existing inequities. Furthermore, documentation alone is insufficient unless paired with data-sharing frameworks and referral systems that can respond to identified needs. At the same time, advanced technologies such as natural language processing offer promising alternatives for extracting social risk factors from unstructured notes, identifying issues that may go unrecorded in structured fields (Mehta et al., 2023; Patra et al., 2021).

Patient perspectives offer additional insight into how SDoH initiatives should be designed and deployed. Studies consistently show that patients are willing to share sensitive information when they trust providers and believe the data will lead to tangible support (Caicedo et al., 2024; Tully et al., 2022). However, transparency about data use and follow-up is essential to maintaining this trust. The evidence highlights that technical advances alone will not ensure success. Rather, a multi-level approach that integrates standardized documentation, technological innovation, community resources, and patient-centered design is required to fully realize the potential of SDoH-informed care.

Given the multifaceted challenges identified in the literature—ranging from inconsistent documentation practices and underutilized coding frameworks to patient concerns about privacy and clinician uncertainty—this study adopted a qualitative approach to more deeply understand the lived realities of SDoH integration. While prior studies have highlighted structural and technological barriers, fewer have explored how frontline stakeholders perceive these issues in practice. A qualitative design enables a closer examination of how social risk data are actually collected, interpreted, and acted upon within clinical workflows, capturing the nuances that quantitative metrics may overlook. This perspective is especially important in implementation science, where context, culture, and communication all play critical roles in shaping outcomes. By engaging both providers and patients in a dialogic process, the study builds on existing literature while adding new insight into the interpersonal, organizational, and ethical dimensions of SDoH integration in electronic health records.

3. Methodology

This study used a qualitative descriptive design (Creswell & Poth, 2018) to explore how SDoH screening and documentation are integrated to explore how social determinants of health (SDoH) screening and documentation are integrated into clinical workflows and electronic health record (EHR) systems. A qualitative approach was selected because it enables a rich understanding of the real-world processes, challenges, and facilitators that shape SDoH implementation in healthcare settings. The focus of the research was on identifying practical strategies to improve data capture, coordination, and use within existing clinical and organizational contexts.

The study was conducted within a large integrated healthcare system in the United States that is actively implementing SDoH screening initiatives across outpatient and care coordination settings. Four participants were recruited through purposive sampling to capture diverse perspectives from key roles directly involved in SDoH-related workflows. Participants included a physician leader, a nurse case manager, a population health analyst, and a clinical program administrator. All participants had direct experience with SDoH screening, documentation, or program implementation. Participation was voluntary, and each participant provided informed consent prior to the interview.

Data were collected through semi-structured interviews conducted virtually using a secure videoconferencing platform. Interviews were scheduled at a time convenient to participants and lasted approximately 45 to 60 minutes. An interview guide was developed based on existing literature on SDoH implementation and refined following a pilot test with an external expert. The guide explored how SDoH screening is performed, how data are documented and shared, barriers to integration, and potential opportunities for improving workflows. All interviews were audio-recorded with participant consent and transcribed verbatim. The research team maintained reflexive notes throughout the data collection process to document emerging ideas and contextual observations.

The data were analyzed using thematic analysis, following Braun and Clarke's (Braun and Clarke 2006) six-phase approach. The analysis began with familiarization with the transcripts and generation of initial codes, followed by iterative identification, review, and refinement of key themes. Both inductive and deductive coding approaches were applied to ensure that new concepts could emerge while still aligning with known implementation frameworks. A codebook was developed collaboratively by the research team and refined through discussion. To enhance credibility, two researchers independently coded all transcripts and met to resolve discrepancies through consensus. Member checking was also conducted by sharing preliminary findings with participants for feedback and validation.

All participants were informed of the study purpose, procedures, and their right to withdraw at any time. Confidentiality was maintained by de-identifying transcripts and securely storing all data. The research team's diverse backgrounds in public health, clinical practice, and health services research informed interpretation while reflexive discussions helped mitigate bias and ensure that findings remained grounded in participants' perspectives.

4. Findings

Multiple interviews were conducted with health care professionals (clinical and non-clinical) on this important topic. The single largest issue that arose from the primary research is the systematic collection and evaluation of SDoH. They are inconsistent, fragmented and often superficial. In conjunction, the research revealed that the care flow stops with frontline collection and follow-up is often uncertain.

Key findings from the interviews were as follows:

- SDoH screening is inconsistently integrated into admission workflows;
- Case management teams handle most follow-up interventions;
- SDoH documentation is linked to quality metrics and reimbursement;
- Data are underused for analytics, tracking, and patient safety integration;
- Screening tools are standardized externally, with limited clinician input;
- Systematic collection and evaluation of SDoH initiatives is inconsistent, fragmented and often superficial;
- Low patient engagement with SDoH tools and perceived as invasive and unclear;
- Provider resistance due to lack of financial and clinical incentives;
- Desire for personalized, pre-visit data collection;
- Skepticism toward current utility of SDoH collection;

The table below underlines the key findings:

Table 1. Summary of Key Findings from Qualitative Interviews on SDoH Integration

Theme	Findings from Interviews	Implications for Practice
Workflow Integration	SDoH screening is inconsistently integrated into admission workflows; frontline clinicians collect data, but case managers handle follow-up.	Need for seamless integration of screening into clinical workflows and clearer delineation of responsibilities.
Data Utilization	SDoH data are rarely used for analytics, longitudinal tracking, or patient safety integration.	Develop analytics dashboards and reporting systems to leverage SDoH data for decision-making.
Screening Tools	Tools are often standardized externally with minimal clinician input.	Co-design tools with clinical teams to enhance relevance, cultural appropriateness, and adoption.
Patient Engagement	Patients often perceive SDoH questions as invasive or irrelevant; engagement is low.	Improve communication about purpose and benefits of screening; incorporate patient feedback in tool design.
Incentives	Providers express resistance due to lack of clear financial or clinical incentives.	Link SDoH documentation to reimbursement, quality metrics, and accreditation.
Patient-Driven Data	Stakeholders favor pre-visit, patient-initiated data collection.	Develop patient-facing tools (e.g., apps or pre-visit surveys) to collect data before clinical encounters.

Frontline hospital interviewees described SDoH screening as an established part of the admissions process—one facility using Meditech and another using Epic's Admissions Navigator. These workflows align with broader U.S. trends where EHR-integrated screening tools are employed to identify needs in key domains such as food insecurity, housing instability, and transportation barriers (Fraze et al., 2019; Ashe et al., 2023). However, in both settings, case management staff—not the frontline clinicians who conduct the screenings—are responsible for follow-up interventions. While this ensures that trained professionals address complex social needs, it may delay immediate point-of-care solutions for urgent issues (De Marchis et al., 2019; Alderwick & Gottlieb, 2019).

Both participants emphasized that proper documentation of SDoH supports organizational goals such as improving Star ratings, meeting quality reporting requirements, and securing value-based payment incentives. Research supports the link between addressing social needs and reducing avoidable utilization, improving patient satisfaction, and enhancing care coordination (Magnan, 2017; Artiga & Hinton, 2018). Yet both hospitals reported that the data are rarely applied in predictive analytics, longitudinal patient tracking, or integration with patient safety event reviews—missed opportunities also documented in national assessments.

Screening instruments in both hospitals are based on standardized, externally developed question sets, with minimal local customization. Literature suggests that involving clinicians in the design process can improve patient comfort, ensure cultural relevance, and enhance response accuracy (Gottlieb et al., 2017; De Marchis et al., 2019). Finally, systematic evaluation remains limited. While hospitals measure how many screenings occur, they often do not track the timeliness, appropriateness, or outcomes of resulting interventions. Embedding evaluation into quality improvement cycles—and pairing quantitative metrics such as readmission rates with qualitative feedback from patients and staff—can identify barriers like stigma, mistrust, or resource shortages, ultimately strengthening the impact of SDoH integration (Ashe et al., 2023; Berkowitz et al., 2021; Stewart de Ramirez et al., 2022; Rangachari & Thapa, 2025).

As health systems transition toward value-based care, understanding and integrating SDoH into clinical and operational workflows has become essential. These two interviews capture insights from Accountable Care Organization (ACO), who oversees a network serving approximately 10,000 Medicare beneficiaries across two physician groups, two hospitals, and 14 clinics. The ACOs operates under the REACH model, emphasizing coordinated care and downside risk management.

ACO interviewees highlight significant barriers to collecting SDoH data, particularly among older adult populations. While the REACH model (a CMS value care initiative) includes an SDoH questionnaire, patient engagement is low, with many reluctant or unwilling to complete the form. From the provider perspective, there is resistance due to unclear incentives. Clinicians often question the value of collecting SDoH data, asking: “What’s in it for me?”

This sentiment is compounded by a lack of reimbursement, absence of defined outcomes, and the substantial workflow changes required to collect sensitive personal information.

Currently, SDoH data is gathered inconsistently, often on paper, and sometimes entered into the EHR. However, the process lacks standardization and often depends on individual champions or "change leaders" willing to take initiative. Without organizational mandates or incentives, the integration of SDoH data into broader care strategies remains fragmented.

When specifically prompted towards the idea of a “patient initiated” tool, both respondents stated that proactive, patient-driven data collection would be more effective. Ideally, patients would complete a pre-visit survey, allowing data to be captured before clinical workflows are impacted. Importantly, any data collection tool should be tailored to the patient population, particularly older adults, to maximize engagement and accuracy.

Operating under the REACH model, the ACO is exposed to downside risk—with real financial losses possible if quality benchmarks aren't met. While MIPS includes 9 SDoH-related questions, meeting these metrics is increasingly difficult. One interviewee noted that, unlike MSSP models where earnings are possible, REACH increases the pressure: *“In REACH, you can lose a lot of money. Measures are becoming harder and harder to achieve.” (*Personal Communication, August 2025).

5. Discussion

The pattern that emerges across sites is a structural decoupling of screening from action—a handoff to case management that is organizationally sensible yet operationally leaky. Prior work shows that SDoH initiatives sustain only when leadership, roles, and workflows are tightly specified and reinforced (Fiori et al., 2021; Novilla et al., 2023). Our data extend this by illustrating how unclear ownership at the point of care suppresses real-time responses and weakens staff belief that screening is worthwhile—echoing the “implementation climate” problem described in earlier evaluations (Ashe et al., 2023). Aligning accountability (who screens, who closes the loop, who is measured) with existing EHR-supported tasks and decision support may therefore be more consequential than adding new questionnaires per se (Cantor & Thorpe, 2018; Gottlieb et al., 2015).

A second implication concerns data utility. Despite policy momentum, social risk information rarely flows into analytics, longitudinal tracking, or safety review processes where it could change decisions (Magnan, 2017). This mirrors national underuse of structured codes (e.g., Z-codes) and variability in documentation (Newton et al., 2023; Ali et al., 2023). The literature suggests two complementary fixes: (1) tighten standardization and incentives so that structured fields reliably populate reports and quality metrics, and (2) augment structured capture with NLP/AI to surface social risks buried in notes, improving visibility without adding clinician burden (Patra et al., 2021; Mehta et al., 2023). Our findings indicate that without a visible pathway from documentation to dashboards, staffing, and performance measures, frontline skepticism persists—even when organizations endorse SDoH conceptually.

Finally, the interviews highlight patient engagement as the pivot for feasibility and trust. Prior studies show patients engage when screening is framed as routine care and linked to tangible help, with clear communication about use and privacy (Tully et al., 2022; Caicedo et al., 2024). Participants' preference for patient-initiated, pre-visit data collection aligns with that evidence and with usability studies of patient-facing tools (Oyedele et al., 2023). For older adults and high-throughput settings, this implies designing low-friction, accessible pre-visit options (paper, SMS, portal, phone) that map directly to standardized codes and trigger referral pathways. Pairing these patient-led inputs with governance (closed-loop follow-up), incentives (quality and payment alignment), and iterative evaluation (linking SDoH to readmissions, experience, and equity metrics) is consistent with emerging guidance on system-level SDoH programs (Rangachari & Thapa, 2025; Fiori et al., 2021) and offers a practical route from collection to impact.

6. Limitations

This study contributes important qualitative insight into the evolving field of SDoH integration within EHRs. While its findings offer valuable direction for policy and practice, it is important to acknowledge certain design characteristics that shape the interpretation and scope of results.

As a qualitative study, the research is intentionally exploratory, aiming to capture the depth and nuance of provider and patient experiences. This approach supports contextual understanding that is often missed by quantitative methods, particularly in areas involving behavior, workflow, and trust (Patton, 2015). However, the use of a convenience sample means that findings are context-specific. While they offer rich insights into SDoH implementation, future studies may extend these results by including broader geographic and institutional representation (Marshall et al., 2013). Such expansion would help clarify which strategies are most scalable across different care settings.

Additionally, the study focused primarily on subjective perceptions, which serve as a critical foundation for implementation science. Interviews allowed participants to reflect on barriers, enablers, and recommendations in their own words—highlighting both the complexity of integration and the promise of thoughtful design. Still, these insights would be complemented by future research that includes longitudinal tracking, multisite comparisons, or quantitative outcome measures (Nowell et al., 2017). Overall, this study lays important groundwork for continued inquiry. Its qualitative orientation offers a detailed and human-centered perspective, helping to illuminate implementation dynamics that are often overlooked. As interest in SDoH integration continues to grow, these findings can inform more inclusive, scalable, and effective approaches to leveraging EHRs for health equity.

7. Conclusions and Recommendations

This study examined the integration of social SDoH into EHRs through a qualitative lens, exploring challenges and opportunities from the perspectives of patients and care providers. Despite growing consensus on the value of SDoH-informed care, practical implementation remains uneven. Structural tools such as ICD-10 Z-codes, SNOMED CT, and LOINC offer technical pathways for documentation, yet their uptake is limited due to workflow friction, training gaps, and the absence of standardized incentives. Emerging technologies, particularly natural language processing (NLP), hold promise for surfacing unrecorded social needs through analysis of unstructured clinical notes. At the same time, successful implementation depends not only on technology and policy but also on cultural sensitivity, trust, and responsive system design.

This study's major themes reinforce the importance of addressing four interconnected domains that influence successful SDoH integration:

- **Clinical Workflow and Screening Integration**
  Screening tools must be embedded into daily practice in ways that align with visit flow, staff responsibilities, and clinical decision support. Leadership engagement and clear implementation protocols are key to sustainable adoption (Fiori et al., 2021; Rudisill et al., 2023).
- **Data Standardization and Structured Documentation**
  Structured coding systems provide a foundation for documenting social risks, but require institutional alignment, training, and incentives to ensure consistency and interoperability (Ali et al., 2023; Vale and White Perkins, 2022).
- **AI and Unstructured Data Innovations**
  NLP and artificial intelligence tools can enhance the visibility of social needs often buried in narrative notes.

These technologies should be validated for equity, transparency, and utility in clinical workflows (Patra et al., 2021; Mehta et al., 2023).

- **Patient-Centered Design and Health Equity**
  Ethical, transparent, and culturally competent data collection fosters patient trust and willingness to disclose social needs. Screening is most effective when accompanied by clear communication and linkage to supportive services (Caicedo et al., 2024; Tully et al., 2022).
- **Patient Driven Data Collection Tools**
  The shift from passive data gathering to empowered patient participation, where tools are designed around the patient experience, ensuring SDoH information is both relevant and usable in real-world clinical workflows. The goal is to move from inconsistent, provider-burdened collection methods to personalized, proactive engagement that meets patients where they are—literally and figuratively (Oyedele et al., 2023).

Together, these thematic pillars underscore the importance of integrating both technical infrastructure and human-centered values to enable meaningful use of SDoH data.

Recommendations

Based on the results of this study, the following recommendations are made:

- Standardize documentation practices by incentivizing consistent use of structured SDoH codes across health systems. Training, protocols, and EHR design must support this transition.
- Leverage NLP and unstructured data tools to complement structured fields and identify uncoded social risks. These technologies must align with clinician workflows and demonstrate real-world value.
- Institutionalize cross-disciplinary collaboration, ensuring leadership support and communication across clinical, IT, and community partners. Such alignment strengthens sustainability.
- Tie SDoH documentation to quality metrics, reimbursement models, and accreditation frameworks to reinforce long-term investment.
- Embed trauma-informed, culturally respectful approaches into screening design and implementation to support trust and inclusion.

The table below provides additional detail in conjunction with the above recommendations.

Table 2. Barriers and Facilitators to Effective SDoH Integration into EHRs

Category	Barriers Identified	Facilitators / Recommendations
Organizational	Lack of leadership support; unclear workflows; siloed data systems.	Strong leadership commitment; cross-departmental collaboration.
Technical	Inconsistent use of Z-codes and structured fields; limited interoperability.	Standardize documentation practices; integrate SNOMED CT, LOINC, and Z-codes into workflows.
Clinical	Workflow disruptions; low clinician buy-in; unclear value proposition.	Provide training; embed SDoH data into clinical decision support tools.
Patient-Centered	Low trust and engagement; concerns about privacy and stigma.	Communicate data use clearly; offer culturally sensitive, trauma-informed screening.
Policy and Incentives	Lack of reimbursement or quality metric alignment.	Tie SDoH documentation to payment models and reporting requirements.
Innovation and Technology	Limited use of AI/NLP to extract unstructured data.	Incorporate AI/NLP tools to complement structured data and uncover hidden social risks.

By attending to these core areas, healthcare systems can move beyond isolated data collection toward integrated, equitable care models that respond to the full context of patients' lives.

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