

Extent of Integration of Social Determinants of Health in Clinical Practice in Hospitals in Uganda

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Abstract

The study determined the extent to which health workers in hospitals in Uganda integrate social determinants into clinical practice. This will provide a baseline for improvement interventions and act as a starting point for elucidating the factors influencing the integration of social determinants into clinical practice. This was a multi-method cross-sectional study conducted at 12 hospitals in Uganda. Data was collected between September and November 2021 involving 1042 health workers, 21 key informants, 2119 medical records, and six focus groups. The extent of integration was measured using an eight-item Likert scale for health workers (Cronbach's alpha of 0.794, inter-item correlation 0.15 to 0.5;) 24-item Likert scale for key informants (Cronbach's alpha was 0.973, inter-item correlation 0.18 to 0.936), and medical records. The study was approved by the research and ethics committee of Makerere University School of Health Sciences and by the Texila American University Faculty and registered by the National Council of Science and Technology. The aggregate extent of integration was 66%, computed as the average health workers score (66%), key informants score (65%), and medical records score (66%). There were variations across hospitals and social demographics of health workers. The extent of integration of social determinants into clinical practice was successfully determined. Further investigations are required to explain the variations across hospitals. The study did not take into consideration carry-over effects from health workers working in non-hospital healthcare settings.

Keywords: Social determinants; Clinical practice; Integration; Factors; Hospitals; Uganda.

Introduction

Although the importance of social determinants in the moderation of health and disease has been recognized since the introduction of social epidemiological concepts in 19th-century Europe [1, 2], the importance of identifying and addressing social determinants at the clinical level has started attracting attention only recently [2-4]. Previous investigations elucidated a number of important knowledge and practice gaps that bedevil the opportunities for

integrating social determinants into clinical practice [2, 5-7]. The World Health Organisation (WHO) defines social determinants of health as non-medical factors affecting health positively or negatively and classifies them into two broad hierarchically related categories: the conditions under which people are born, grow, live, work, and age; and the broader socio-economic factors that shape these conditions [6, 8]. The conditions include the status of components of the physical environment, the characteristics of the social environment, and the elements of the economic

Received: 30.12.2022

Accepted: 15.01.2023

Published on: 30.03.2023

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environment. Social determinants may also be categorized as micro, meso, and macro-social determinants. Micro-level factors are more immediate; the Meso-level factors are intermediate, while the macro-level structural factors are broader in nature [9]

Social determinants may adversely and variously affect crucial upstream attributes such as access and utilization of healthcare, mid-stream attributes such as health worker-patient relationship, retention into care programs, understanding and interpretation of medical information, and downstream attributes such as community integration and rehabilitation.

Health workers are in a good position to screen patients for social risk factors and take deliberate measures to address these factors [4]. This enables health workers to provide accommodative, focused, and sensitive care and support patients to cope with or manage their social challenges. This would facilitate the care process, enhance the patient experience, improve treatment outcomes, and ultimately eliminate disparities in health outcomes [9, 10]. It would enhance the coordination of health services [4], provision of person-centered care [11], delivery of quality services [4], accessibility to health services as well as continuity and continuum of care. Integration of social determinants of health into clinical practice, therefore, contributes to the optimal use of scarce resources and greatly improves the quality of healthcare, enhances clinical outcomes, and improves population health. These dividends are of great importance for health systems in less developed and developing economies. Although the phenomenon of integration has been interrogated to a great extent [2, 4, 12], the studies have been in developed countries. These studies have not adequately addressed the aspect of determining the extent of integration of social determinants into clinical practice. Yet knowing the extent to which health workers identify and address social risk factors provides a baseline for interventions and acts as a starting point for elucidating the

factors influencing the integration of social determinants into clinical practice.

The purpose of this study was to explore the extent to which health workers in hospitals in Uganda integrate social determinants into clinical practice. To address some of the limitations with earlier studies, the tools used in this study to measure the extent of integration were constructed based on the entire continuum of possible activities and actions for integration of social determinants into clinical practice that have been elucidated in literature [2, 4, 13]. These activities were at the patient, departmental, hospital, and community levels [3, 14]. The extent of integration was determined from three perspectives: health workers, key informants, and medical records.; The general perceptions among patients regarding the extent to which health workers integrated social determinants into clinical practice.

Materials and Methods

Study Design

This was a cross-sectional hospital-based study that involved the collection of primary data from health workers, key informants, and patients and secondary data from medical records in determining the extent of integration of social determinants into clinical practice. Data for the study were collected over a period of three months, that is, September to November 2021.

Study Sites

The study was conducted at twelve hospitals in Uganda, representing 16% of the total bed capacity [15] The hospitals were selected purposively to achieve a balanced mix based on level of care, accreditation, and regional distribution. Data was collected from 1042 health workers, 21 key informants, 2119 medical records, and six focus groups.

Sample Size Determination

The sample size for health workers was determined using the formula $n = Z^2P(1-P)/d^2$

[16] where n was the sample size, $Z = 1.96$ is the statistic corresponding to 95% level of confidence, P was the expected prevalence of screening for social determinants which in this case was 52% as per the Medical Group Management Survey [17] and d as the precision which was set at 0.02. Adjustment for the finite population of health workers estimated at 101,350 [18] provided a sample size of 1949. The sample size was further adjusted to 1169 by eliminating the non-clinical health workers. The sample size for key informants was selected based on the figure of 15-25 recommended by the UCLA centre for basic policy research [19]. From this recommendation, a sample of 24 was selected to enable the matching of the number of key informants with the relative sizes of the hospitals. The required number of the focus group was six focus based on the understanding that an average of six focus groups unveil 90% of the key themes in a diverse population. The minimum number in each focus group was set at six adult patients as this number has been observed to be adequate for a focus group discussion. The number of medical records was set at 50 per medical condition per hospital, giving a total of 200 medical records per hospital and 2,400 medical records on overall to reflect the average number of OPD attendance attributed to these conditions in the participating hospitals.

Inclusion and Exclusion Criteria

Health workers had to be in the clinical category, which included medical social workers and counsellors; the key informants had to be heads of clinical departments, patients had to be on ambulatory care, and medical records had to be for the selected medical conditions selected based on their clinical and social importance in Uganda (Malaria, tuberculosis, diabetes mellitus, and hypertension) and created within 12 months from the date of data collection. Health workers not willing to participate in the study or were less than three months on the job were excluded. Patients not willing to participate

or with a diagnosis of tuberculosis and Covid 19 in the last 21 days were also excluded.

Sampling Techniques

Health workers were selected based on availability and willingness to take the survey; medical records were selected randomly, heads of departments were purposively selected as key informants, and six focus group discussions were conducted involving OPD patients.

Data Collection

Data was collected using a self-administered questionnaire, key informant interview guide, focus group discussion guide, and a medical review template.

The self-administered questionnaire containing 8 Likert-type items (numbers C1 to C8) was used to collect data from health workers. On a five-point Likert scale, the health workers were asked to indicate, in their current practice in the hospital, the proportion of cases from which they obtained information on social factors, the proportion of identified social factors brought to the attention of the hospital, and frequency of picking important information from social history; adjusting treatment plans in light of social factors, assisting patients with social needs, recording social factors into the medical record, communicating important social information to fellow staff, and participating in community activities organized by the hospital.

The key informant guide containing 24 Likert scale items (numbered K1 to K24) was used to collect data from heads of departments. On a five-point Likert scale, the key informants were asked the rate the extent to which activities related to the integration of social determinants were undertaken at health worker, departmental, hospital, and community levels.

The scales used in the health worker questionnaire and the key informant guide met all four characteristics of a summated rating scale [20]. All items were assumed to possess equal weights in line with the Likert method, which enabled the summation of the responses

for each item to create composite scores [20] [21]. The summated rating-scale format was selected because: it produced scales with good psychometric properties hence good reliability and validity [20, 21]; was generally cheap and easy to develop [21]; and had the additional advantage of being quick and easy for respondents to complete [20, 21]

The medical record review template was used to collect data from case books, patient registers, medical charts, and electronic medical records where available. A list of pointers was used to identify the presence of social factors in the medical record. Each selected record was assessed for the presence of both routine socio-demographic information and factors relevant to a particular medical condition. For a factor to be deemed to have been documented, at least one of the pointers should have been observed in the medical record.

The focus group discussion guide was used to collect data from patients. Patients were asked to discuss their experience and understanding of the social determinants in the community and in clinical practice.

Data Analysis

Data analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 26 analysis. Data analysis was undertaken in four stages: data preparation; reliability analysis; characteristics of the sample; and extent of integration.

Data Preparation

Filled questionnaires, the key informant guide, and the medical review template were checked for completeness and appropriateness of entries and responses. Likert scale data, qualification, profession, and professional accreditation were unipolar coded; gender was binary coded; religion, marital status, and department were nominally coded. The questionnaire items were numbered from C1 to C8, and the key informant guide items were

numbered k1 to k24 based on the order in which they appeared in the questionnaire.

Reliability Analysis

The 8-Likert scale items on the questionnaire yielded Cronbach's alpha of 0.794, and the Cronbach's alpha of 0.795 based on standardized items. The inter-item correlations were between 0.15 and 0.5. The corrected item-total correlations were all within the moderate to strong range (0.333 to 0.576). None of the items exhibited appreciable increases in the Alpha above the summative value when the individual items were excluded (0.759 to 0.794). The 24 Likert items yielded Cronbach's alpha of 0.973. The inter-item correlation was from 0.18 to 0.936. The inter-item totals did not show any item which, when excluded, would drive Cronbach's alpha above 0.973. Hence all the Likert scale items on the questionnaire and key informant guide were relevant measures for the extent of integration of social determinants into clinical practice.

Characteristics of the Sample

Socio-demographic data and other attributes of the sample were analyzed descriptively to compute proportions, percentages, and means.

Extent of Integration

Frequencies of the integration were computed for each action. The eight Likert items were summated into a single variable that was used to compute the mean item summated scores. Similarly, the 24 Likert items were summated into a single variable. The mean item summated scores were converted into combined composite scores for the 12 hospitals. The combined scores were derived by multiplying the summated scores and their corresponding frequencies and then dividing the product by the total possible summated scores for the valid responses and multiplying this by 100. The percentage appearance of each social factor in the medical record was computed in reference to the expected frequency across all the medical conditions. The extent of integration for each

medical condition was calculated as a percentage of the summation of the observed frequencies for all the social determinants against the summation of the expected frequencies. The extent of integration from the medical records was computed as an average of the percentage scores for the relevant factors for each medical condition for each hospital. For each hospital, a percentage score was computed for each factor and medical condition. The percentage scores for the different factors were then averaged across the hospitals. The aggregate or composite for all medical conditions was computed by averaging the scores for the different medical conditions. Focus group data was qualitatively analyzed to determine the general impression and opinion of patients regarding the extent to which patients thought the health workers integrated social determinants into clinical practice.

The overall score for the extent of integration was computed by averaging the composite scores for health workers, key informants, and medical records.

Ethical Considerations

The study was approved by the research and ethics committee of Makerere University School of Health Sciences, the National Council of Science and Technology was duly informed, permission to conduct the study was granted from the respective hospitals, and written informed consent was obtained from the participants. Data was presented anonymously using data masking.

Results

Characteristics of Sample

The majority of the hospitals were Christian founded. The mean age of the health workers was 28.57 years (SD 6.72), with minimum of 18 years and maximum of 57 years. The gender

distribution of the health workers was Male 40.9% and Female 59.1% (n=1042). The majority of the health workers (88.9%, n=1042) were of the Christian faith, followed by the Muslim faith at 7.6%. The mean period in active service was 5.0 years (SD, 5.9), with minimum of 0.5 years and a maximum of 44 years.

Nursing/Midwifery was the predominant profession at 57.3%, followed by Medicine and Surgery at 11.5%. Most of the health workers were from Obstetrics/Gynaecology, followed by Paediatrics. The majority were licensed by the Nurses and Midwives Council, 57.4% (n=1042); The others were licensed by the Medical and Dental Practitioners Council, 10.1%, Pharmaceutical Society of Uganda, 4.1%; Allied Health Professional Council, 16.4%; No licensing body, 12.2%. The majority were certificate holders, 50.2% (n=1042), followed by diploma holders, 28.8%; bachelor's degree holders, 16.2%; master's degree holders.

Ranking of Integration Actions

Table 1 illustrates the ranking of actions taken by health workers for the integration of social determinants into clinical practice. According to the health workers, the most frequent actions that they undertook were obtaining social risk factors from history, assisting patients with social needs, adjusting treatment plans based on social needs, recording identified social risk factors, and communicating social risk factors. According to key informants, adjusting treatment plans according to the patient's social factors and circumstances, adjusting clinic hours to suit patient circumstances, conducting outreaches to schools, and surrounding communities, connecting patients to relevant social support services, and sharing with colleagues and other healthcare providers the experiences on social determinants of health were more frequently undertaken by health workers.

Table 1. Illustrating the Raking for the Actions for Integration of Social Determinants into Clinical Practice

No.	Self-ranking by health workers	Ran
C 2	Obtaining social risk factors from history	1
C 4	Assisting patients with social needs	2
C 3	Adjusting treatment plans based on social needs	3
C 5	Recording identified social risk factors	4
C 6	Communicating social risk factors to other health workers	5
C 7	Participation in community activities	6
C 1	Patient encounters where social risk factors are assessed	7
C 8	Bringing social risk factors to the attention of management	8
	Ranking by key informants	
K6	Adjusting treatment plans according to the patient social factors and circumstances	
K7	Adjusting clinic hours to suit patient circumstances	1
K15	Conducting outreaches to schools and surrounding communities	2
K11	Connecting patients to relevant social support services	3
K9	Sharing with colleagues and other healthcare providers the experiences on social	4
K13	Referring patients for non-medical services to address social risk factors and needs	5
K10	Advising patients on the necessary actions regarding their social risk factors	6
K24	Conducting patient experience and feedback surveys	7
K4	Discussing social risk factors and needs with patients	8
K1	Screening patients for social risk factors and social needs	9
K8	Providing language services	10
K21	Engaging community partners to identify and address social risk factors for	11
K5	Documenting social risk factors and needs in the patient medical records	12
K12	Communicating with non-medical service providers on social risk factors	13
K23	Evaluating performance of healthcare workers with respect to addressing patients	15
K16	Partnering with religious groups and community groups to address patents social	16
K19	Organizing the departmental work flow to cater for social needs and circumstances of	17
K3	Assisting patients with identified social risk factors and needs	18
K2	Reviewing patient records for social risk factors and social needs	19
K20	Engaging community health workers on patients social risk factors	20
K17	Organizing and facilitating community social assets to address patient social needs	21
K18	Working with partner community organisations to promote policies that address	22
K22	Conducts community sensitization on social risk factors	23
K14	Identifying the community social assets	24

Prevalence of Factors in Medical Records

The results showed that hypertension had the highest percentage of the expected social factors captured in the medical record at 75%, followed by Malaria at 66%, Tuberculosis at 62%, and Diabetes mellitus at 61%. Some social factors were documented in the medical records as less friendly.

For instance, alcohol abuse in TB was at 57.5%, education in all four medical conditions

(25%, 24%, 31%, 26%, respectively), excessive alcohol intake in DM (48%), geolocality in hypertension (59%), income instability in DM (25%), material deprivation in DM (29%), occupation in Malaria (55%), ventilation of the housing in TB (48%), poverty in TB (9%), social exclusion in DM (42%), tobacco use in DM (55%), undernutrition in TB (46%).

Extent of Integration

The score for integration of social determinants into clinical practice across the 12 hospitals was 66% from the perspective of health workers, 65% from the perspective of key informants, and 66% from the perspective of medical records. The overall extent of integration was analyzed using data from health workers, key informants, and medical records. The aggregate extent of integration was 66% for the 12 hospitals. This score was also reflected in the general perception among patients. Overall, four of the six groups had consensus that health workers were trying to identify and address social determinants when seeing patients.

The extent of integration varied by gender, religion, and hospital. Figures 1, 2, and 3 illustrate the variations in extent based on gender, religion, and hospital. Female health workers had higher scores than their male colleagues. However, the difference was not statistically significant $\chi^2=40.402$, $p=0.991$, $df=64$. Christian health workers had higher scores than the Muslims (modal score 4 vs 3.5), and the difference was statistically significant $\chi^2=195.062$, $p=0.031$, $df=160$. All the hospitals registered a score above 50. % on the extent of integration with a range 25. There were, however, marked differences in the summated scores across hospitals.

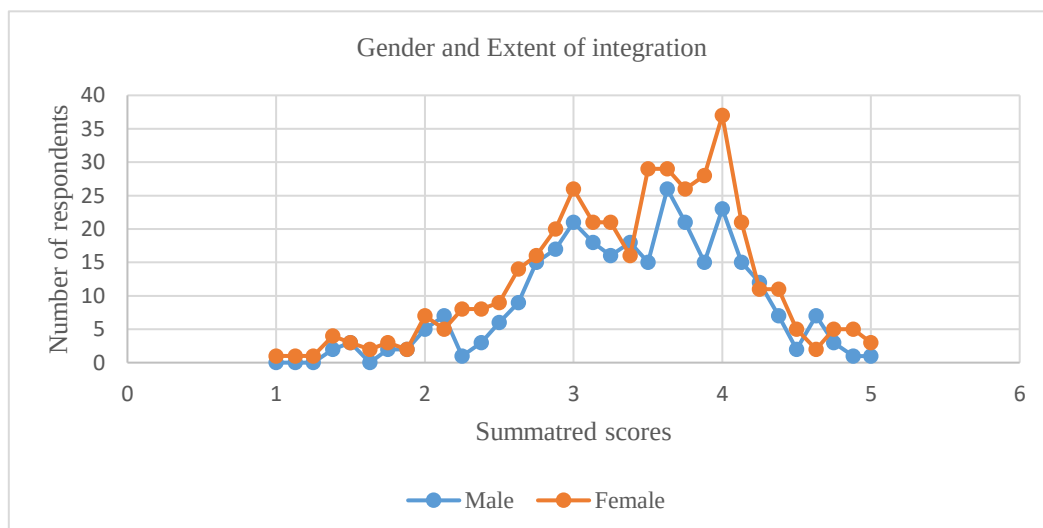


Figure 1. Illustrating the Distribution of Summated Scores for the Extent of Integration by Gender

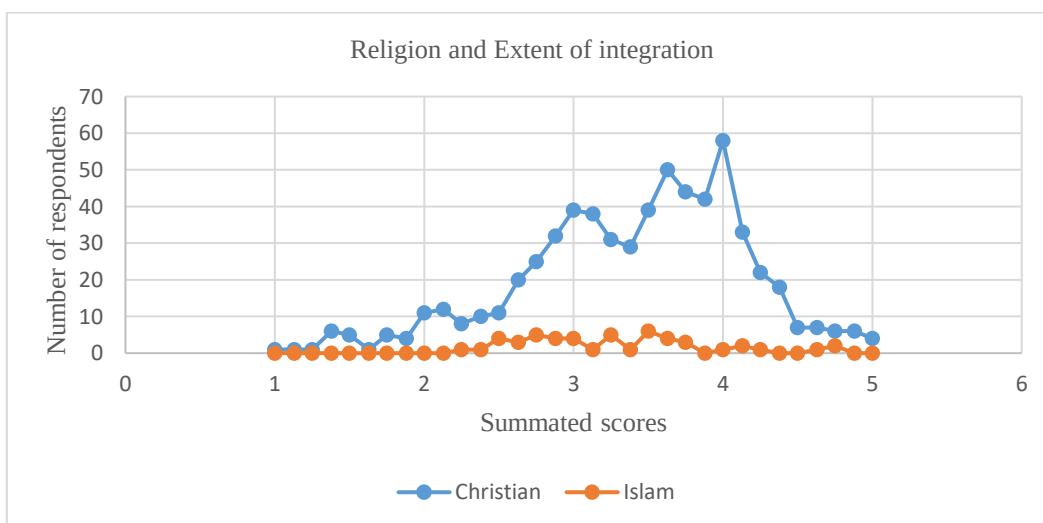


Figure 2. Illustrating the Distribution of Summated Scores for the Extent of Integration by Religion

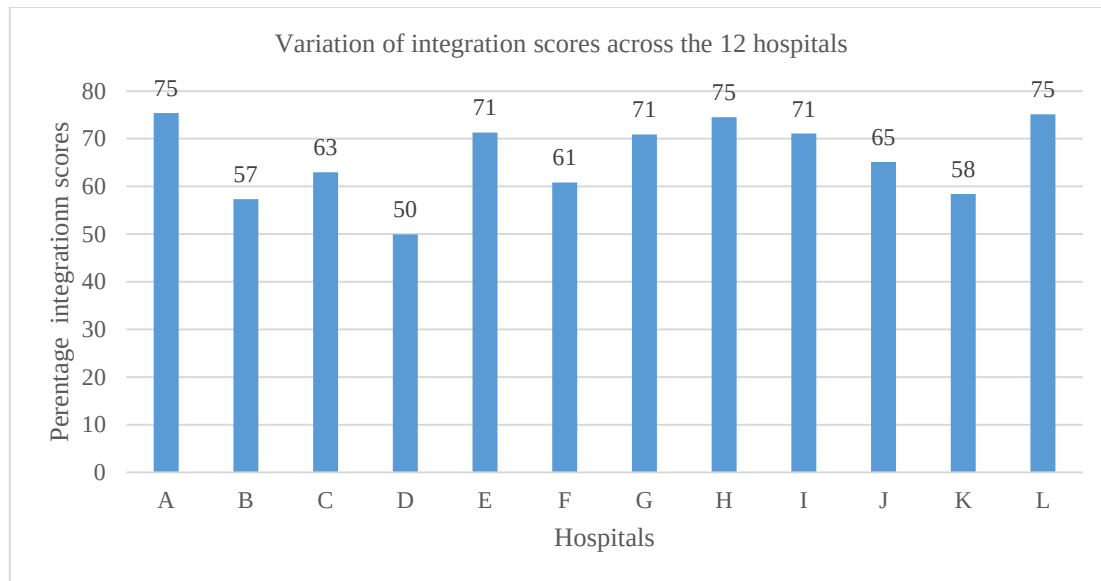


Figure 3. Illustrating the Distribution of Summated Scores for the Extent of Integration by Hospital

Detection of Social Determinants in Practice

The proportion of health workers who indicated that they had detected at least one positive case of social risk factor in the preceding two months was 64%, and this was near twice the proportion for those who regularly communicated and identified the positive cases to the hospital administration. The proportion of the health workers who indicated that they regularly enquired about social risk factors during health care delivery was 42.8%. The means for obtaining information on social risk factors was history taking, at 76.2% (n=1042), and from patients' notes at 22.1%, and the rest indicated use of the questionnaire.

A small number of health workers also indicated that they made inferences on social risk factors based on the patient's residence and occupation. Most health workers indicated Training of staff on social history taking was regarded as the most important avenue for ensuring the social screening of patients. Health workers indicated that inadequate financial resources, challenges with access to health care, low health literacy, social isolation; family instability; communication challenges, and food insecurity were the most common social risk factors among patients.

Discussion

The mean age for health workers was close to the mean age of 30 years for the working age group reported by the Uganda Bureau of statistics two years ago [22], and the gender proportion of 59.1% was close to the female proportion of 54% of the health workforce in Uganda [23]. The proportion of 88.9% of the Christian faith was close to the figure of 82% reported in the 2019 Report on International Religious Freedoms in Uganda [24] while 7.6% for Muslims was just half of what was indicated in that report. This finding was expected because of the relatively large number of faith-based hospitals in the sample. The mean period in active service of 5.0 years was in tandem with the average length of stay of 10 years [25]. The figure of 57.3% for Nursing/Midwifery is very similar to the 55% observed by MoH Uganda [25]. Most nurses and midwives work in the obstetrics and gynaecology, and paediatrics departments, thus explaining the apparently larger number of respondents from these departments, and this explains the higher proportion of certificate holders given that most of the nurses and midwives.

The aggregated extent of integration of social determinants in this study (66%) was above average and differed across hospitals, hospitals,

as well across the socio-demographic attributes of the health workers. The extent of integration was generally similar to what has been observed in some of the previous studies. Some studies have shown that the extent to which health workers undertook actions related to social determinants was inconsistent and ranged from 10% to 99% [13, 17, 26], with aspects such as gender and age history occurring in 99% of the cases while occupational history occurred in only 27.8% of the cases [26]. Screening patients has been reported to occur at 88% at some hospitals but consistency has been reported at only 62% [3]. Other scholars have reported that health workers screened for social risk factors in 50-60% of patient encounters [13] while others did not screen for and address social risk factors in over 90% of clinical presentations [4, 13]. The Medical Group Management Association survey on screening for social determinants indicated that screening of patients for social factors was generally low, standing at just 52% [17]. Direct comparison between the findings of the current study and those of the previous studies is constrained because previous studies have been undertaken in developed countries, mostly USA and Canada, focused mainly on patient micro-level actions such as screening patients and offering direct support to patients with social needs. The strength of the current study was in the use of multiple sources of primary data as well the triangulation between the methods and data sources. The uniqueness of this study is derived from the fact that it adopted the entire continuum of actions at patient, practice, institutional, and community levels, thus making it more robust and precise.

Data from the current study revealed a negative gradient from the patient level to the community level in terms of integration of social determinants into clinical practice, thus highlighting deficiencies in macro-level actions for integration of social determinants into clinical practice. The gradient was like what was observed among members of a health

collaborative in rural Northeastern Minnesota and Northwestern Wisconsin [27].

Low integration of community-level actions has immense implications for primary health care. It inhibits community participation, undermines the joint advocacy role, keeps the community health literacy low, and the community members largely unaware of the services, benefits, and challenges associated with the hospital services. These constraints occur because community-level actions promote equity and can accelerate the attainment of universal health coverage and enable hospitals to develop a better understanding of community needs and to appreciate the socio-cultural elements of the community. The activities also provide an opportunity for health workers to improve their cultural competencies and narrow the communication and service gaps between the hospital and the community.

Furthermore, low integration of community-level actions creates a disconnect between communities and hospitals, implying that health workers and hospitals will neither adequately mobilize communities to participate in healthcare delivery nor understand the cultural and linguistic nuances that affect access to health care. The disconnect reduces the opportunities for referral of patients for social services, reduces the uptake of services, and negates the supportive role of the community in healthcare delivery and rehabilitation. It also has implications for primary health care since hospital-led activities such as disease screening, nutritional education, immunization, mobile clinics, mobile laboratories, prenatal education, and needs assessment are key components of the primary health care concept as per the Alma Ata Declaration, 1978 [28]. Ultimately, low integration of community-level actions creates challenges in maintaining linkages with and collaborations with communities to foster effective planning, organization, and delivery of health services.

The low integration of community-level actions into clinical practice can be attributed to

limitations in conceptualization of the concept and a predominantly pro-medical model view of healthcare services embraced by health workers and hospital administrations. The inclination towards the pro-medical model nurtures the perception among health workers that their primary role is to provide medical care and not address social determinants. Inadequate conceptualization of the concept at institutional creates challenges such as a lack of direction from hospital leadership and resources for community-level actions, inadequate guidance to health workers, and reduced focus on community health come into play. At the administrative level, the consequences of inadequate conceptualization of the concept lead to lack of proper coordination mechanisms and linkages between the health system and the community social structures and limited functionality of community structures. Policy-level challenges include limited policy guidance regarding the roles for hospitals and community social structures and the mechanisms for engagement. These challenges call for policy and practice guidelines and better coverage of social determinants in the training of health workers. Further investigations are also required to confirm these attributions and better understand the related intricacies.

The proportion of encounters where health workers made inquiries for social factors was in tandem with the observations made by other scholars where it ranged from 37.8% to 50.5% for some social aspects but much lower for others [5]. Such a low level of eliciting social factors from patients denies health workers the opportunity to engage patients better on a personalized basis and ensure continuity of care. The variation in the rate of eliciting social risk factors from patients for different social factors is attributed to variations in health worker competencies, hospital environment, the attitude of health workers, disease characteristics, adoption level for the practice of integration and membership to nurses, and midwives professional body as observed in this study.

There is need to conduct further investigation to understand how these attributes influence health worker behaviour so as to develop effective interventions.

The study revealed a low rate for communicating social risk factors to the hospital administration, implying that health workers. This implies that health workers tend to address the identified social factors at the patient level, and rarely escalate the issues to the hospital administration. This has dire implications for actions to integrate social determinants at an institutional level. Based on the other findings in the study, the low reporting rate is attributed to the absence of institutional guidelines for health workers to bring such issues to the attention of the hospital administration. To date no study has investigated this tendency hence the need to furnish empirical data through further research to better understand the causes and implications.

Documentation of social factors in the medical records was generally consistent in terms of frequency and variability with the findings by Eder, where food insecurity, financial strain, and housing instability were recorded at frequencies of 63%, 49%, and 59%, respectively [29]. Documentation helps in constructing prediction models and identifying patients in need of social services [30]. It also facilitates the proper transition of patients across different points of care, and the information can be used to ensure consistency in follow up hence proper continuity of care. Despite its importance, the documentation of social factors was generally low in this study, with three of the conditions scoring below 70% and a number of important social factors scoring as low as 9% (financial strain in TB patients). This is of great concern because financial constrain, if not identified and mitigated, can affect adherence to treatment, accelerate disease transmission, and lead to poor clinical outcomes [31]. Other social risk factors with low scores, such as alcohol abuse, income instability, material deprivation, occupation, home ventilation, social exclusion, tobacco use, and undernutrition, have the

potential to affect the patient's ability to seek care, carry out self-management, follow clinical instructions, and report problems associated with medication. Additionally, prolonged exposure to stress and adverse childhood experiences distort glucose homeostasis, increase blood pressure, disrupt neuroendocrine function, and lead to chronic allostatic load [32]. Therefore, identification and documentation of these factors can enable health workers to support patients affected by these social factors through counselling, adjustment of treatment plans, and referrals but also mitigate or reverse the progression of conditions such as type 2 diabetes mellitus and hypertension. Therefore, health workers should consistently screen these type of patients to identify and document these social factors.

The low level of documentation of social determinants by health workers can be attributed to several factors, such as limited training, lack of national standards for documentation of social determinants, lack of tools for screening patients, and lack of interest from the health workers. Tools are crucial for the proper identification and documentation of social factors, but the lack of properly validated tools has been cited as a challenge. The importance of tools on the extent of documentation has been emphasized, including the use of diagnostic codes such as the International Classification of Diseases [30]. Differences in the documentation for the four medical conditions can be attributed to variations in clinical guidelines. For instance, while the Uganda Clinical Guidelines, 2016 highlighted a number of social factors to be considered when taking a history from a suspected or known hypertensive patient, the same was not done for Malaria, diabetes mellitus, and tuberculosis. Some authors have attributed the variability in the documentation of social factors to the patient and disease-related factors (Medical Protection) and peculiarities at the practice level [33-34].

Variation of integration across hospitals would have been expected due to differences in

accreditation. However, differences even among those with the same or similar accreditation cast doubt on this attribution and raise the point that while these hospitals operate within the same policy environment, there are certain variables driving the variation that has not hitherto been explored. Hence the need for further investigation to identify the factors behind this variation.

Variation of integration due to differences in gender, religion, profession, and professional accreditation is generally expected. These differences could however be due to other factors, and further investigations are required to fully characterize the effect of these factors on the integration of social determinants into clinical practice in Uganda.

Conclusion and Recommendations

The general objective of the study was to determine the extent of the integration of social determinants of health into clinical practice in Uganda. This was successfully achieved through the specific objectives. It, however, required to develop of the tools for undertaking the measurement. The tools were developed and used successfully to determine the extent of integration from the perspectives of health workers, key informants, and medical records. The data were then successfully computed into the overall extent of integration of social determinants into clinical practice in Uganda. The data from the three perspectives were close, thus underscoring the internal validity of the instruments. Additional triangulation was obtained from the patients who gave the impression of above average level of integration.

The results generated a number of interesting points as well as issues of concern. The extent of integration fitted within the range of scores obtained from other studies, although some of the studies had very low scores. There was variation in scores across hospitals as well as across gender, religion, profession, and professional accreditation. To a certain extent, these variations could be explained, although not

from an empiric posture. The variation across the hospitals could not be explained using the expected variables of accreditation and the policy environment, implying a real need for further investigations to determine factors that influence the integration of social determinants into clinical practice in hospitals in Uganda.

Three recommendations arise from the observations, analysis, results, and discussion: The tools used in the study whose robustness and precision have been vindicated from the results of the study be adopted by the World Health Organisation, and mainstreamed into the quality improvement framework for the health sector; The MoH provides policy guidance and practice guidelines to hospitals regarding the actions to integrate social determinants into clinical practice including community level actions; The hospitals incorporate screening of social factors into the triage guidelines.

References

- [1] Han, D. S., Sang-Soo Bae, Kim, D.-H., & Choi, Y.-j. 2017, Origins and Evolution of Social Medicine and Contemporary Social Medicine in Korea. *Preventive Medicine and Public Health*, 50(3), 141-147. doi: 10.3961/jpmph.16.106. <https://koreascience.kr/article/JAKO201718836709557.pdf>.
- [2] Anne A., A. 2018, Screening for social determinants of health in clinical care: moving from the margins to the mainstream. *Public Health Review*, 39(19). doi: <https://doi.org/10.1186/s40985-018-0094-7>. <https://publichealthreviews.biomedcentral.com/articles/10.1186/s40985-018-0094-7>.
- [3] Samantha A and Elizabeth H 2018, Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity. Date of Access: 30/07/22. <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>.
- [4] Andermann, A. 2016, Taking action on the social determinants of health in clinical practice: a

Limitations

The multi-method approach greatly eliminated social desirability bias. This study did not adjust for possible carryover effects from non-hospital healthcare settings due to the traffic of health workers between these settings and the hospitals.

Conflict of Interest

The authors have no conflict of interest with respect to this study.

Acknowledgement

Management of Joint Medical Store (JMS) for unreservedly supporting me financially, morally, and logistically. Student Mentor, Ms. Jesna Merlyn D. I remain grateful for your enduring support. The Co-Guide, Dr. Freddy Kitutu for his wise counsel and guidance.

framework for health professionals. *CMAJ*, 188(17-18). doi:10.1503/cmaj.160177. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5135524/>.

[5] Phillips, J., Richard, A., Mayer, K. M., Shilkaitis, M., Fogg, L. F., & Vondracek, H. 2020, Integrating the Social Determinants of Health into Nursing Practice: Nurses' Perspectives. *Nursing Scholarship*. Retrieved November 15, 2020, from <https://sigmapubs.onlinelibrary.wiley.com/doi/full/10.1111/jnu.12584>.

[6] 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*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/25467>.

[7] American Academy of Family Physicians. (2018). *Addressing Social Determinants of Health in Primary Care team-based approach for advancing health equity*. The Everyone Project. Date Accessed: 7/31/22.

https://www.aafp.org/dam/AAFP/documents/patient_care/everyone_project/team-based-approach.pdf.

- [8] WHO. (2008). Social determinants of health. Date Accessed: 29/08/2020, https://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en.
- [9] J. Michael O., 2008. Macrosocial Determinants of Population Health: Edited by Sandro Galea. American Journal of Epidemiology, 167(12). <https://doi.org/10.1093/aje/kwn059>. <https://academic.oup.com/aje/article/167/12/1518/88508>.
- [10] Allie F., 2020. Applying Social Determinants of Health to Improve Care Coordination. Date Accessed: 26/05/2020; <https://hitconsultant.net/2020/05/26/applying-social-determinants-of-health-to-improve-care-coordination/#.YYiJWmBBw2w.05/26/2020>.
- [11] Labib G, Gerald V. G., David Z., Anne A., 2018. Physician experiences and barriers to addressing the social determinants of health in the Eastern Mediterranean Region: a qualitative research study. BMC Health Services Research (2018) 18:614. <https://doi.org/10.1186/s12913-018-3408-z>.
- [12] Deloitte. (2017). Social determinants of health: How are hospitals and health systems investing in and addressing social needs? <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-addressing-social-determinants-of-health.pdf>.
- [13] Arvin G., Brian J., Barry Z., 2013, Addressing Social Determinants of Health within the Patient-Centred Medical Home. Date Accessed: 07/07/2019, <https://www.pcpcc.org/resource/addressing-social-determinants-health-within-patient-centered-medical-home>.
- [14] Popay J, Kowarzik U, Mallinson S, Mackian S, Barker J. 2007. Social problems, primary care and pathways to help and support addressing health inequalities at the individual level. Part II: lay perspectives. J Epidemiology Community Health.;61(11) doi: 10.1136/jech.2007.061945.
- [15] Cecilia O. 2021. Government Rushes to Procure More Hospital Beds. The New Vision, 07 July <https://www.newvision.co.ug/articledetails/108087>.
- [16] Mohamad A. P., 2013. Sample size calculation in medical studies. Gastrology and Hepatology from Bed to Bench, 6(1) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017493/>.
- [17] Jarmusz, S. V. 2019. News and Insights: Data insights. (S. v. Jarmusz, Editor) Retrieved from mgma.com: [https://www.mgma.com/data/data-stories/screening-for-social-determinants-of-health-\(sdoh\)](https://www.mgma.com/data/data-stories/screening-for-social-determinants-of-health-(sdoh)).
- [18] Ministry of Health, 2018. Annual Health Sector Performance Report http://library.health.go.ug/sites/default/files/resources/AHSPR%202017_18%20FY.pdf.
- [19] UCLA Centre for Health Policy Research 2004. Section 4: Key informant Interviews. https://healthpolicy.ucla.edu/programs/health-data/trainings/Documents/tw_cba23.pdf.
- [20] Paul E. S. 1992. Summated Rating Scale Construction: An Introduction Sage University Papers Series. Quantitative Applications in the Social Sciences; No. 07-082. <https://home.ubalt.edu/tmitch/645/articles/Summated%20Rating%20Scales.pdf>.
- [21] Anol B., 2012. Social Science Research: Principles, Methods, and Practices. <https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-6-measurement-of-constructs/>
- [22][22] Uganda Bureau of Statistics, 2019. Annual Labour Force Survey 2018/19. https://www.ubos.org/wp-content/uploads/publications/05_20212018-19_ALFS_Report_FINAL.pdf.
- [23] WEMOS Health Limited, 2019 Uganda's Human Resources For Health: Paradoxes And Dilemmas. Country Report Uganda. https://www.wemos.nl/wp-content/uploads/2019/11/Wemos_Country-report-Uganda-2019_Ugandas-Human-resources-for-health_Paradoxes-and-dilemmas.pdf.
- [24] Office of International Religious Freedom. 2019. Report on International Religious Freedom: Uganda. <https://www.state.gov/reports/2019-report-on-international-religious-freedom/uganda/#:~:text=According%20to%20the%20most%20recent,14%20percent%2>.
- [25] Ministry of Health 2007. Uganda Health Workforce Study: Satisfaction and Intent to Stay

Among Current Health Workers. <https://Intrahealth.org/sites/ihweb/files/files/media/uganda-health-workforce-study-satisfaction-and-intent-to-stay-among-current-health-workers/exe>.

[26] Politi, B. J., Arena, V. C., Schwerha, J., & Sussman. 2004. Occupational Medical History Taking: How Are Today's Physicians Doing? A Cross-Sectional Investigation of the Frequency of Occupational History Taking by Physicians in a Major U.S. Teaching Center. *Journal of Occupational and Environmental Medicine*, 46(6), https://journals.lww.com/joem/Abstract/2004/06000/Occupational_Medical_History_Taking__How_Are.9.aspx.

[27] Dauner, K.N., Loomer, L. A, 2021. qualitative assessment of barriers and facilitators associated with addressing social determinants of health among members of a health collaborative in the rural Midwest. *BMC Health Serv Res* 21, 867 (2021). <https://doi.org/10.1186/s12913-021-06859-6>.

[28] WHO (2022). WHO called to return to the Declaration of Alma-Ata. <https://www.who.int/teams/social-determinants-of-health/declaration-of-alma-ata>.

[29] Eder M., Henninger M., Durbin S. Iacocca M. O. Martin A; Gottlieb, L. M., Lin J. S., 2021. Screening and Interventions for Social Risk Factors: Technical Brief to Support the US Preventive Services Task Force. *Journal of The American Medical Association*, 326 (4) DOI10.1001/jama.2021.12825.

[30] Joshua R. V., Julia Adler-Milstein, Laura M. G., et al., 2022. The American Journal of Managed Care, January 2022, 8 (1). Assessment of Structured Data

Elements for Social Risk Factors. <https://www.ajmc.com/view/assessment-of-structured-data-elements-for-social-risk-factors>.

[31] ECDC Technical Report, 2018. Social determinants and risk factors in tuberculosis surveillance in the EU/EEA. <https://www.ecdc.europa.eu/sites/default/files/documents/Social-determinants-and-risk-factors-for-TB.pdf>.

[32] Ruth A. Hackett and Andrew Steptoe, 2017. Type 2 diabetes mellitus and psychological stress — a modifiable risk factor Article in *Nature Reviews Endocrinology* · June 2017 DOI: 10.1038/nrendo.2017.64).

https://www.researchgate.net/publication/318080827_Type_2_diabetes_mellitus_and_psychological_stress_-_a_modifiable_risk_factor.

[33] Soto, C.M., Kleinman, K.P. & Simon, S.R. Quality, and correlates of medical record documentation in the ambulatory care setting. *BMC Health Serv Res* 2, 22 (2002). <https://doi.org/10.1186/1472-6963-2-22>.

<https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-2-22>.

[34] Tasew, H., Mariye, T. & Teklay, G., 2019. Nursing documentation practice and associated factors among nurses in public hospitals, Tigray, Ethiopia. *BMC Res Notes* 12, 612 (2019). <https://doi.org/10.1186/s13104-019-4661-x> Nursing documentation practice and associated factors among nurses in public hospitals, Tigray, Ethi. <https://bmcrenotes.biomedcentral.com/articles/10.1186/s13104-019-4661-x>.