ORIGINAL RESEARCH

Research findings on addressing social determinants of health in practice: Nurses' perspectives

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ABSTRACT

Background and objective: Assessing and intervening with patients' SDOH are important to nursing practice. However, there are only a few studies on frontline nurses' perspectives on integrating the SDOH into clinical practice. The purpose of the study was to assess acute care nurses' knowledge, confidence, and likelihood for addressing patients' social determinants of health (SDOH).

Methods: A descriptive study was conducted surveying 190 nurses in three hospitals within a large northeastern US hospital system using an adapted 48-item SDOH survey which measured nurses' confidence in, knowledge of, and likelihood to address the SDOH with patients.

Results: Respondents reported a high level of knowledge and confidence in addressing the determinants of stress and social support as factors compared with lower percentages of respondents who identified less knowledge and confidence in addressing patients' education level, race. income, unemployment, and job security factors.

Conclusions: The findings support that didactic educational interventions are needed as well as experiential learning around addressing patients' SDOH.

Key Words: Research on social determinants of health, Inpatient nurses, Education

1. INTRODUCTION

There is a growing consensus that addressing Social Determinants of Health (SDOH) is critical to achieving health equity, especially for the most vulnerable populations. Social Determinants of Health affect quality of care, access to care and health outcomes in our society. SDOH are non-medical factors impacting an individual's health and are broadly defined as conditions in which people are born, grow, live, work and age. These specifically include factors such as poverty, education, housing, food insecurity and access to healthcare. The Future of Nursing 2020-2030 Report[1] calls for nurses to align public health, policy, and research to eliminate health disparities. Thus, assessing and intervening with patients' SDOH are important to nurses. However, and while nurses have traditionally been taught to apply a holistic lens when caring for patients, there are only a few studies on frontline nurses' perspectives on integrating the SDOH into clinical practice.

Relevant research

A significant number of research publications and non- scientific media have stressed the importance of "social determinants" and their effect on the health of individuals. Noteworthy, more than 14 years ago, it was estimated that social determinants contributed more than 60% of modifiable factors to health outcomes (including behavioral patterns) while clinical care considered to influence only between 10%-20% of modifiable contributions to health outcomes.[2] Similar

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data were reported in 2014,[3] and most recently in 2017.[4] Health equity can be achieved through eliminating health disparities and can improve the health of individuals especially for the most vulnerable in our society.[5] Social, racial, and economic inequities impact health disparities and influence mortality, life expectancy, the burden of disease, and mental health.

Little research has been published regarding how inpatient nursing can contribute to focusing on SDOH. An earlier survey study with a small, targeted sample of registered nurses (N=107) found they lacked the necessary knowledge about SDOH. In addition, the respondents reported being uncomfortable themselves, and further, anticipated patient discomfort in addressing some of these factors.[6] Only one study[7] based on a survey developed by Persaud[6] addressed nurses working in acute care settings and their knowledge, their confidence to address SDOH, and their subsequent likelihood of interacting with patients around specific SDOH. Phillips et al.[7] used the Persaud[6] instrument and further tested it for reliability, However, because of the diverse specialty practice settings of the subjects in their study and their final small specialty sample sizes, the researchers reported limited analysis of the collected data especially on the respondents' demographics: they only reported on descriptive results of the three variables (scales): knowledge, confidence, and the likelihood of addressing specific factors. In summary, their findings reported respondents' lack of confidence in addressing SDOH factors such as patients' income and the presence of interpersonal violence.[7] These authors also reported that their survey respondents identified time constraints as a barrier to addressing SDOH.

Other published research findings have also highlighted barriers to nurses' addressing SDOH in clinical settings, most notably, time constraints. In one qualitative study, using a focus group format, nurse participants expressed time constraints as a barrier for including SDOH in their usual clinical day or patient care.[8]

1.1 Research objectives

This study used a survey method to ascertain inpatient nurses' knowledge, confidence, and their behaviors regarding patients' SDOH factors. The study's second goal was to relate specific demographics of the responders to their responses on the survey as well as their educational background and their past experience with SDOH such as how their knowledge was acquired. In order to determine if there were specific ways in practice to address SDOH with patients, especially related to the issue of time constraints, qualitative open-ended items collected narrative examples on nurse-patient encounters around SDOH interactions.

Findings from this study may be used to develop new strategies for bedside nurses to identify and incorporate SDOH information into care plans that enhance their holistic approach to patients' health. Finally, the use of patient encounters as a format for addressing SDOH can be implemented and tested. The present study sought to enhance research findings by Persaud.[6, 7]

1.2 Theoretical underpinnings

Utilizing Self-Efficacy Theory[9] and the Theory of Planned Behavior[10] assisted to further clarify the study constructs, confidence, knowledge, and likelihood of action, within the process of how nurses address SDOH. Confidence is related to notions about motivation, which is related to confidence. The concept of self-efficacy, based on social learning theory,[9] explains confidence as the ability to exert control over one's own motivation, behavior, and social environment. Phillips et al.[7] study also addressed nurse respondents' action or intent related to addressing SDOH with patients.

One of the study's measurements addressed the respondents' likelihood of action (using a Likert scale) for addressing patients' specific SDOH. In understanding the "likelihood" of action, numerous studies on health and health behavior have explored the Theory of Planned Behavior.[10] The use of this theory in research has focused on an individual and his/her own health behavior, decisions, and actions. However, this framework can be viewed as an important lens to understand the construct of "likelihood", or intent, related to research subjects' actions regarding specific decisions around SDOH.

2. METHODOLOGY

2.1 Study design

This study used a survey method to ascertain inpatient nurses' knowledge, confidence, and likelihood to respond regarding patients' SDOH factors as well as including qualitative questions to understand specific nurse-patient encounters in day-to-day care that can be used to assess patients' SDOH. A descriptive study was completed with 190 nurses working in three hospitals within a large northeastern US hospital system. Data were collected using an adapted 48-item SDOH survey[6] which measured nurses' confidence in, knowledge of, and likelihood to address the SDOH with patients in their care.

2.2 Recruitment and data collection

After obtaining institutional review board (IRB) approval, a flyer was posted on each unit in all three facilities. Each flyer had a QR code, to access an online survey through REDCap. The QR code led nurses to an invitational letter outlining aspects of voluntary participation, confidentiality,

and anonymity. All data were collected with no personal identifiers. The eligible study participants were clinical nurses spending more than 51% of their time in direct patient care. The study took place in Northeastern Healthcare System at three community hospitals. Out of 696 clinical nurses who were eligible to participate, 190 in total participated in this study.

Descriptive statistics were used to analyze the findings. Responses to qualitative items added to the survey expanded on the SDOH assessment process.

2.3 Instruments

Participants completed a brief Demographic Form and the Social Determinants of Health Knowledge, Attitudes and Behavior survey. Permission to use the 48-item Social Determinants of Health Knowledge, Attitudes, and Behavior Survey was obtained with scoring information.[11] The instrument had limited published psychometric data and had been used twice.[6,7] The instrument was used for nurses to self-rate on 13 SDOH items listed on general knowledge, how likely they are to address the SDOH in their practice, and their confidence in discussing SDOH for each of the 13 items. They responded on a 5-point Likert scale (0 = not at all, 1 = slightly, 2 = moderately, 3 = very, 4 = extremely). The researchers added qualitative questions to capture opportunities nurses may have in their practice to address SDOH. The participants were asked to describe examples of their opportunities in their daily patient care to address SDOH factors at other times rather than on admission as required. Routinely, on patient admission, this large health care system requires nurses to identify patients' SDOH by completing a checklist listing social needs, that is part of the "patient profile". The subjects were asked about their experience and education related to SDOH and if they obtained prior experience. The participants were able to complete the online survey within 20-30 minutes.

3. FINDINGS

3.1 Data analysis

Participants' demographics and responses to the survey questions were summarized using descriptive statistics. The responses to the qualitative questions were analyzed using a content analysis process which identified categories and themes. The scores on the survey were correlated with subjects' reported demographic data. The Spearman correlation coefficient was used to measure the relationship between SDOH item responses and number of years in nursing, years worked at the health system, and basic nursing education. A result of $< .05$ was considered significant. All analyses were conducted using SAS, release 3.8 Enterprise Edition.

3.2 Demographics of sample

The population of nurses for this study had a mean of 17.36 years of nursing experience and an average of 13.01 years of working in the three hospitals. Out of 190 respondents, N = 8 were age 18 to 25, N = 41 were age 26-35, N = 37 were age 36-45, N = 96 were age 46- 65 and N = 8 were more than 65 years of age.

Responses to the items on race/ethnicity showed the following, with some respondents checking more than one choice: American Indian, (N = 5); Asian (N = 59); African American (N = 27); Pacific Islanders (N = 4); and White (N = 98).

Basic Nursing Education responses were Diploma (N = 1); Associate degree (N = 18) and Baccalaureate Degree (N = 171). With respect to the sample's highest degree attained, findings were Associate (N = 13); Baccalaureate (N = 135); Master's (N = 42). When asked about past education or experience related to SDOH, of the 190 respondents, 49% (N = 93) answered in the affirmative that they had experience and 50% (N = 96) answered in the negative Noteworthy, the associations (correlations) between educational experience and years in the system and the independent 13 SDOH survey items on participants' confidence, knowledge, and likelihood to address these in practice were not significant using 0.05 level except for the social gradient and disposable income SDOH items.

3.3 Survey response findings

Descriptive statistics (frequencies and percentages) were used to evaluate responses to the 3 scales: confidence, likelihood to respond, and knowledge. The responses were collapsed from 5 original Likert categories to 3 categories: "not at all to slightly," "moderately" and "very to extremely" as was undertaken in the two prior reported studies that used the instrument. The survey responses were then coded so responses fell into two main categories: likely and unlikely. These categories resulted in responses How likely and how unlikely regarding knowledge confidence and behavior were recorded for each specific SDOH factor. This was undertaken because there were similar responses without much variation among the three levels of agreement and responses were generally high in percentage of respondents likely to have knowledge, confidence, and behavior. The main factors with lowest and highest percentages are shown in Tables 1 and 2.

Table 1 demonstrates that addiction, stress, and social support were factors nurses had a high level of knowledge on, were confident and were likely to engage in conversation with their patients. Other factors that nurses cited they had a moderate level of knowledge, confidence and likelihood to address were transportation and disability.

Table 1. SDOH Factor Survey Responses in Percent for Most Likely (Knowledge, Confidence, Behavior) for Sample

SDoH	How confident (%)	How likely to ask (%)	How knowledgeable (%)
Addiction	79	85	84
Food Insecurity	74.5	72	72
Transportation	78	78	75
Education	74	71.5	76
Race and Culture	74.5	70	76
Disability	78	80	77
Disposable Income	67	53	65
Social Gradient	67	58	66
Stress	89	88	88
Social Exclusion	77	68	72
Work Conditions	78	62	75
Unemployment/Job Security	71	67	69
Social Support	88	88	85

Table 2 shows that social gradient, disposable income, and unemployment were factors nurses had a low level of knowledge, confidence and were least likely to address during their encounters with patients in their daily practice.

Table 2. SDOH Factor Survey Responses in Percent for Not at all (Knowledge, Confidence, Behavior) for the Sample

SDOH	How confident (%)	How likely to ask (%)	How knowledgeable (%)
Addiction	21	15	15
Food Insecurity	25	26	28
Transportation	22	22	25
Education	26	30	23
Race and Culture	26	30	23
Disability	21	20	23
Disposable Income	33	47	35
Social Gradient	33	41	31
Stress	10	11	11
Social Exclusion	23	21	27
Work Conditions	27	23	25
Unemployment/Job Security	29	33	30
Social Support	12	11	14

3.4 Qualitative response findings

Responses to the qualitative question supported the quantitative findings and were thematically analyzed using line by line coding of responses and then these were categorized into themes. For the question on how participants utilize knowledge of SDOH in their practice, there were 3 main categories that emerged: 1.) The type of SDOH addressed, 2.) What action was taken and 3.) How and when the SDOH issues were addressed.

For example, for the question what type of and how a SDOH factor was addressed, the coded responses to nurses' narratives were such as these two examples:

1) "Overheard patients talking with families, especially about sensitive topics like income, utilities", and 2) "We have patients coming back to emergency room because they did not understand instructions or have no PMD or have no health insurance".

For the category of "what actions were taken" regarding knowing about or assessing an SDOH examples of the coded responses were:

1) "We connect patients to resources or those who have the knowledge like a case manager" and 2) "Referred patients

to social work, those who are abusing alcohol, have no insurance, homeless and need medications".

For the question "how and when the SDOH issue(s) were addressed: the coded responses were such as: 1) *"During giving medications and personal care"* and 2) *"When discharging patients"*.

These encounters did shed some light on times during practice when these topics might come up or be overheard such as while giving medications or personal care. Only 25% percent of the sample answered these items. However, the usual intervention for noted problems involving SDOH was using the "in place referral mechanisms" such as to referring to case workers and social workers.

4. DISCUSSION

4.1 Limitations

The results of the study are encouraging and provide a baseline level of understanding nurses' confidence, knowledge and behaviors associated with SDOH, however there are several limitations that need to be acknowledged. The findings from this study can only be generalized to the study population and the health system as a whole because the study took place in one healthcare system in the Northeast. While there were 3 specific sites in the study, the results are not reported by site to enable a larger sample size for data analysis. However, there is still a limited sample size. Further, the instrument used in the study has limited validity and reliability. In addition, the instrument showed little variation for this sample's responses being scored either as moderately or very/extremely and also indicated a high level of knowledge, confidence, and likelihood to act. Moreover, a very small sample of nurses of the total completed the qualitative questions. Nevertheless, those that did respond provided some examples of important encounters with patients regarding their SDOH.

Also noteworthy, there was no significant statistical relationship between the demographic variables of the respondents such as experience, age or educational background and the independent items on confidence, knowledge, and likelihood to act.

Given these study limitations, the results should be viewed with caution. Nevertheless, results of this study enriched the limited body of knowledge related to how nurses interact with patients and families around SDOH. Findings regarding nurses' responses to their level of knowledge, likelihood to act and confidence being scored either as moderately or very/extremely indicated a high level of knowledge, confidence, and likelihood to act. Some nurses reported feeling more confident in discussing some factors of social determinants versus others for example in discussing stress, social support, and addiction.

There are similarities in the high level of confidence to level of being likely to address the factors of stress and social support in fact, the majority of nurses (88%) reported that they are likely to engage patients in discussing stress, and social support. This is not an unusual finding because most basic nursing programs include the impact of stress as well as social support on patients' health and well-being. These questions are also a part of routine nursing assessment captured on admission and nurses are familiar with them. Usually, when patients across this study's health system are admitted, many of these factors are discussed during nursing daily interprofessional rounds. A high level of knowledge, confidence, and ability to act on factors of stress and social support were also findings noted by Persaud.[6] In our study, nurses reported having only a moderate level of knowledge, confidence, and likelihood to address factors related to transportation, work conditions and food insecurity. This is contrast to the Phillips[7] study in which findings indicated a lower level of nurses' knowledge, confidence, and ability to discuss SDOH such as food insecurity. In addition, in this present study, over 85% of nurses reported that they are likely to act on the SDOH factor related to addiction. While this topic is sensitive and although there are questions related to illicit drug use on the routine nursing assessment, the high level of nurses responding as likely to address this issue, can be explained by a high level the public awareness of the country's drug related deaths and addiction in general. Additionally, nurses' holistic and compassionate lens may help explain that, despite the sensitive nature of the topic, nurses are likely to have discussions and interact with their patients on the topic of addiction.

Similarly in a study by Nusbaum,[12] nurses perceived their role positively, held positive attitudes towards people with opioid addiction and were willing to take care of people who misuse opioids. Unlike in a study by Mahmoud[13] in which findings demonstrated that nurses had negative attitudes that the author conjectured may prevent them from providing adequate patient care. Mahmoud, on further analysis, found that these negative attitudes were associated with nurses' having family members affected by substance use and the stigma that is associated with and may have contributed to the feelings of perceived dangerousness, fear, and beliefs that substance abuse is a personal behavioral choice.

4.2 Implications for practice and education

These study findings are a first step to determining necessary educational and clinical interventions regarding SDOH and their use in practice. As in other reported studies, nurses were

more comfortable with such factors as stress social support and addiction as opposed to more apparent sensitive factors such as financial ones or violence Programs that educate nurses regarding SDOH should include more experiential exercises to focus on how to address sensitive SDOH factors.

In addition, information about nurses' possible encounters used in practice to address SDOH were analyzed from the brief responses to two open-ended questions on the demographic form. The encounters did shed some light on possible ways barriers such as time constraints might be mitigated. As noted, nurses found personal care of patients or during medication administration as times to address SDOH factors.

5. Conclusion

While this study had several limitations, it is one of the few published ones that addressed the importance of, as well as findings about, inpatient nurses' confidence, knowledge, and likelihood to act on or address SDOH. The findings are a basis to develop educational programs to assist with increasing nurses' confidence especially related to assessing more sensitive SDOH factors related for example to income or financial issues and violence. Experiential-type education activities are recommended to address these. While limited information was gathered regarding how to overcome time constraints for addressing SDOH in practice, the qualitative findings provided some examples of nurses' utilizing usual care with patients to accomplish this.

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Authors contributions

All authors contributed to the research and writing specific sections of the manuscript. Dr Enzinger also reviewed all contributions and final review and editing was undertaken by Dr White.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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