

Learning social determinants of health through a home visiting course in the clinical years

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ABSTRACT

Objective: The purpose of this study was to assess the impact of a new experience-based educational program aiming to teach social determinants of health (SDH) and health disparities, through a post-discharge home-visit conducted with patients recruited in hospital.

Methods: 105 clinical-year students visited 177 patients living in disadvantaged circumstances. Their home-visit reports were analyzed employing mixed methodology. Content analysis was conducted for classifying issues raised by students, and quantitative analysis to compare reports by level of elaboration, gender and class.

Results: Fifteen taxonomy items were identified. Social support and patients' medical conditions were most prevalent, followed by personal-related and community-related issues. Analysis demonstrated students' understanding of the relationship between SDH and patient health, and challenges patients face following discharge. Women and mixed couples provided more elaborate reports, which contained significantly greater critique of medical care.

Conclusions: Meeting patients both in hospital and at home enhanced awareness of SDH. Students learned to view the patient comprehensively, and to understand the diverse factors affecting their health. Students, who had essentially sole responsibility for the home-visit, successfully integrated their skills to take action when needed.

Practice implications: The ETGAR experience provided a means for effective learning about how social determinants impact on health.

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1. Introduction

1.1. Social determinants and implications for health

Social determinants such as poverty and low levels of education are known to have a significant effect on health, comparable to the effect of pathophysiological factors [1]. Health disparities are rooted in social determinants with minorities, immigrants and other disadvantaged populations disproportionately affected. The results are greater barriers to achieving healthy behaviors with consequent poorer health outcomes [2].

Preparing future doctors to tackle health disparities poses a huge challenge for medical schools worldwide [3–5]. Understanding social determinants of health (SDH), their impact on patients' health and how they underpin health disparities, while equipping students with communication, advocacy, and cultural competence skills [6–8], are essential steps in training future doctors committed to reducing health inequities [6,9].

1.2. Teaching methods

Training cannot reside in traditional classroom settings alone: it needs to include a range of health and non-health settings [6,10]. However, medical schools tend to schedule such courses in the pre-clinical years. These courses usually focus on improving knowledge, attitudes, and basic skills, but omit integration into practice [10–12], a process that takes place during the clinical years, where

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core medical and professional learning occurs and life-long habits are developed [8].

Experience-based learning is the most widely used workplace-based education method [13,14]. By learning in a well-established experience-based program, students gain more than just knowledge and skills. They acquire deeper understanding of their patients' circumstances, develop empathy and compassion, and gain the first sense of themselves as future doctors [15].

New educational programs, mostly experience-based, have been designed and launched in recent years [16] to understand community services [17], transition in care [18,19], SDH and tackling health-disparities [16]. However, most of these are voluntary, community-based programs [10], and only few are longitudinal, or are required components of medical studies [10,13,20,21].

1.3. The ETGAR course

In 2015 we designed the ETGAR¹ course [22] at the Azrieli Faculty of Medicine at Bar-Ilan University, as a means to further students' understanding of health care inequities and SDH. ETGAR, which provides a student-delivered service for patients during transition in care, is delivered by medical students in their clinical years, and involves a post-discharge home visit of patients recruited while in hospital [23].

According to the biopsychosocial model, the doctor must integrate information from various sources affecting a patient's life to fully understand and take care of a patient, including biological, personal/psychological, and social/community aspects [24,25]. By providing the ETGAR service, students meet patients not only in the familiar hospital context, but also at home, and under students' near-sole responsibility. The home visit following discharge, a time when patients are most vulnerable to problems associated with SDH [26], makes this experience potentially richer, and exposes students to a comprehensive view of the patients, and the effects of SDH on health and wellbeing. We anticipated that meeting patients both in hospital and at home would expose students to SDH, to social and health care services in the community and to patient concerns that are rarely raised in hospital.

This paper assesses students' experiences of the home-visiting program, focusing on how it enhanced their observation of the varied determinants affecting patients' health according to their home-visit reports. It explores the nature of their observations, and the resulting perception of the relationship between these determinants and the patient's condition.

2. Methods

2.1. The ETGAR course

Students take care of four patients during their transition from hospital back home. They prepare a discharge letter in plain language, directed to the patient. They then conduct a home visit where they go through the letter, check medications, clarify understanding of the hospitalization and treatment plan, and liaise with community and hospital services if required. A follow up phone call concludes the service (Fig. 1).

Students undergo a full-day training session at the start of the course, four tutorials during their clinical rotations, and receive structured feedback on each home visit report. The training session includes lecture and simulation-based training emphasizing the biopsychosocial approach, i.e. learning about social and environ-

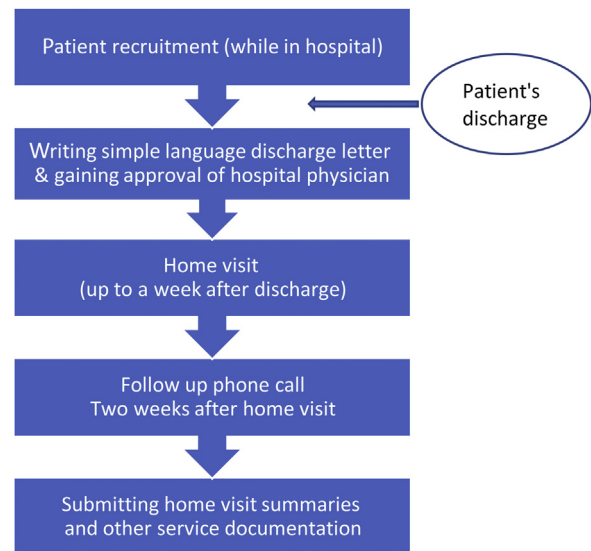


Fig. 1. schematic description of ETGAR course.

mental determinants affecting patients' health, the importance of exploring patients' social and personal backgrounds, and considering and respecting patients' culture and beliefs.

2.2. Setting and participants

Bar-Ilan University's Faculty of Medicine, located in the northern periphery of Israel, is home to diverse ethnic populations, as well as immigrants. The population has lower income and higher poverty levels compared to elsewhere in Israel [27], higher rates of diabetes and cancer [28,29], lower access and provision of care [29], and lower life expectancy [30].

To date, two student cohorts have participated in the ETGAR course during their clinical years (3rd and 4th year). In the first pilot year, students volunteered and received a scholarship for participating in the course. The following year, the program was made compulsory for all clinical students, in which the students in pairs visit four patients, one in each long rotation: internal medicine, surgery, obstetrics/gynecology and pediatrics. Both students are equally active in the encounter.

The students were encouraged to recruit patients who were likely to benefit from the service, such as the elderly and those with chronic medical conditions, inadequate Hebrew or seen by staff to be needy. Analysis shows that appropriate patients participated: aged 70 ± 15 years, 54% with <12 years education, 50% under-average income, 95% with chronic medical conditions.

2.3. The tool – students' home visit reports

The students documented their service using a structured report that included questionnaires, a concerns table, and a semi-structured free text home-visit summary. In their home-visit summary, students were asked to consider the following issues: the patient's characteristics; the main challenges faced during the home visit; and the lessons learnt from the encounter. Students were given a free hand regarding the summary's content and level of elaboration. These summaries were not, and were not meant to be, reflective writing, but rather an opportunity to let students describe the patients' medical, social, and emotional conditions, and the students' actions and concerns. The summaries, therefore, reflect students' observation and understanding of patients' health and determinants affecting their health while visiting them at home.

¹ ETGAR – the Hebrew word for challenge, is an acronym for health literacy, support and a bridge between medicine and community.

2.4. Research methods

This research is a form of action research [31] undertaken by the authors, MCJR, SS, MS and DS, who are part of the ETGAR team. The research was undertaken as a step in extending the understanding of ETGAR as an educational method, with the aim of further developing and advancing the course.

We employed a mixed methods approach utilizing the GRAMMS (Good Reporting of a Mixed Methods Study) [32] framework in designing, conducting and reporting the study to ensure a high level of methodological congruence. Exploring the impact of the course on students required identifying their observation of social and other determinants affecting patients' health as well as their understanding of the way these determinants interact with the patients' health. Qualitative content analysis of students' home-visit summaries was conducted first to identify the constructs students detected during home visits, and quotations were then extracted representing students' understanding of how the determinants affected patients' health.

To further understand the home visit impact on learning, we quantitatively identified those determinants that received more attention and those which were rarely noted. Additional factors such as student gender and year of study that might interact with learning were also quantitatively analyzed.

2.5. Analysis

We conducted a descriptive content analysis [33] of home visit summaries, guided by the bio-psychosocial model. This model, which underpins the ETGAR course directs the carer to consider the personal and social aspects affecting patients' health in addition to medical issues. We looked for text reflecting the patient's condition; determinants affecting patients' health; students' actions; and students' experiences of being in the caretaker role and categorized them according to the four constructs of the bio-psychosocial model, namely medical aspects, personal/psychological/emotional aspects, social aspects and community. To these taxonomies we added an additional domain reflecting students' experience, such as assuming the caretaker role. To ensure trustworthiness and minimize researchers' views and expectations interacting with the findings, we conducted triangulation at the preliminary phase of the analysis. In the first phase, we conducted a content analysis, as described above, for 12 reports. The analysis was carried out by DS, a psychologist experienced in doctor-patient communication and assessment, and MCJR, a physician experienced in population health. In the second phase we conducted confirmatory analysis of seven summaries, based on the taxonomy constructed in the first phase. This analysis was carried out by DS, MCJR and SS, a sociologist experienced in qualitative research. The revised taxonomy list was then used to analyze the summaries and was conducted by DS.

We analyzed all student summaries in the pilot year (2015–2016) of the program to account for variation as students were

posted in four affiliated hospitals located in different geographical areas and serving different populations. Following this analysis, no additional items were added to the original taxonomy. The following year, 2016–2017, ETGAR became a compulsory course and the training and feedback process were revised. We decided to add another cohort to the study, and sampled all students' summaries from internal medicine, their first clinical rotation. In this analysis we identified an additional item which appeared in a small number of reports. This led us to decide that saturation was reached and to end the analysis. In total, we analyzed 177 summaries of which 93 were from the pilot year, and 84 from the second year.

To gain a fuller picture of students' experiences during the home visits, we subjected our qualitative findings to quantitative analysis. We counted the number of different taxonomy items mentioned in each summary; each item was counted only once per summary. Thus, for example, if students mentioned social support several times in their summary, it was counted only once. This item counting created a 'Number of Items' (NOI) variable, indicating the level of elaboration for each report. Additionally, quantitative analysis enabled us to measure frequencies representing the more frequent/easier to detect items in contrast to those which were rarely detected. It also allowed us to compare students' groups according to gender: men, women or mixed pairs; class and students with high or low level of elaboration. We used T-test and one-way ANOVA to compare the student groups. The data were analyzed using SPSS version 25 (IBM Inc).

Approval for this study was obtained from Bar-Ilan Azrieli Faculty of Medicine's ethics committee.

3. Results

Taxonomy analysis of home visit summaries indicated how students understood their patients' conditions and concerns through the holistic approach of the bio-psychosocial model, and their choice of action.

3.1. Content analysis

We categorized the taxonomy items according to the four constructs of the bio-psychosocial model (as shown in Table 1). We added an additional construct to reflect items that addressed students' actions or experience, as presented in the last column.

Students addressed issues reflecting all four constructs of the biopsychosocial model. The content analysis not only exposed the concepts and topics raised by the students, but also students' experiences and lessons learned, reflecting students' understanding of the relationship between SDH and patients' conditions. The quotes below illustrate factors that students identified as affecting patients' health including: the challenges faced by patients during transition from hospital to home; the role students took while taking care of the patients; and students' reflections on their role as future doctors.

Table 1

Taxonomy items extracted from 177 ETGAR home visit summaries written in 2015–2017 according to biopsychosocial categorization.

Medical	Personal	Social	Community	Student related items
<ul style="list-style-type: none"> Medical condition Mobility and independence Checking medication 	<ul style="list-style-type: none"> Emotional condition Cultural and personal background Patient's attitudes towards the medical system Lifestyle 	<ul style="list-style-type: none"> Social support Literacy or education level Social determinants of health 	<ul style="list-style-type: none"> Community-based medical care Community-based social services 	<ul style="list-style-type: none"> Action taken by students Students' execution difficulties Student's criticism of medical care

3.1.1. Medical factors

Medical factors included students' identification of a patient's medical condition, in which students usually referred to patients' current health status and their ability to take care of themselves. Within this construct, we found that students related to 'checking medication' as part of a patient's medical condition. Although checking medication was a routine for all home visits, and can be considered an 'action', students generally made a point of reporting this item only when medication issues comprised a major aspect of the visit, usually medication discrepancies or handling and storing medications.

"It is the first time we've entered a patient's home and found a big mess in the way the medications are stored. Some were outdated, and others were outside their boxes . . .". (2nd group)

3.1.2. Personal factors

Personal attributes included descriptions of patients' emotional state, personal background beliefs and customs, as well as patients' attitudes toward the medical system. Meeting patients at home exposed students to loneliness, a factor that was not always identified by the hospital staff. Some patients lived alone or with one primary caretaker, and some lived in a supportive environment but felt lonely or isolated due to their illness or loss of independence. The case below demonstrates students' ability to build trust, and by listening to the patient to elicit her perspective and expose her distress behind her apparently comfortable life.

The patient's socioeconomic status is high, and all her medical needs are taken care of. What she does need is company, she feels lonely since she is not able to leave home by herself and needs her family's support for transportation. (2nd year)

3.1.3. Social factors

Social factors included students' accounts of social support as a category, i.e., family and others who take care of the patient's health and other needs, to socioeconomic status and living environment. It also reflected students' reports on the effect of SDH on a patient's condition. They related to issues such as patients' education, literacy, and health literacy levels, which are not often considered in the hospital setting but bear heavily on patient-provider communication and the quality of care [34,35]. In the case below, neither the students nor medical staff recognized the patient's illiteracy while in hospital. The lesson learned was: literacy must not be taken for granted.

"The patient cannot read. We discovered it only while visiting him at home. Since he had not received any oral explanation of his

medication regime changes (as he claims), he did not know about the changes". (2nd year)

3.1.4. Students' criticism of medical care

By listening to the patients, students learned how patients perceived the healthcare system and the discharge process. These involved mostly negative experiences, such as being unheard or misunderstood. Viewing the medical system through patients' eyes led some students to express their own critical thoughts about health care.

. . . During discharge from hospital, the patient did not have any geriatric consultation or assessment of his needs or capabilities. They would have found he is incapable of cutting a pill in half and is non-adherent to some medications because of their high cost. (2nd year)

3.1.5. Students' actions

Most of the actions reported by students were related to patient education. In one-third of the cases, the students demonstrated extra initiative and caring. In some, the students not only documented the medication discrepancy or alerted the patient, they took initiative by involving a senior doctor and then "closing the loop" with the patient:

We found that some medications in the discharge letter were not prescribed by the family doctor. The hospital cardiologist we consulted claimed the patient must take these medications. . . . We contacted the patient again and asked her to see her family doctor to get a new prescription. (Pilot year)

3.1.6. Student execution difficulties – language and cultural barrier

In the setting of the home visit and the "one-on-one" conversation, the students confronted challenges such as language and cultural barriers, and overcame them to create an effective encounter:

"We could hardly understand her due to her heavy Moroccan accent. Her son helped us in the first part of the visit. As the conversation went on, we managed to understand her by ourselves". (2nd year)

3.1.7. The interplay between biopsychosocial factors and medical treatment

The entire ETGAR process made students realize that awareness of the patient's home environment, beliefs, and needs must play a major role in treatment decision-making during transition of care and their role as caretakers. In the example below, involving a patient who did not attend appointments due to impaired

Table 2

Taxonomy items extracted from 177 ETGAR home visit summaries conducted between 2015 and 2017 according to their frequency of appearance in students' summaries.

Item	N (%) of reports including the item	Item categorization
Patient's social support	139 (79%)	Social
Patient's medical condition	113 (64%)	Medical
Action taken by students	105 (59%)	Student related
Patient's literacy or educational level	78 (44%)	Social
Patient's emotional condition	65 (37%)	Personal
Patient's mobility and independence	66 (37%)	Medical
Checking medication	64 (36%)	Medical
Patient's cultural and personal background	62 (35%)	Personal
Social determinants of health	60 (34%)	Social
Patient's perspective of healthcare system	55 (31%)	Personal
Community-based health care (primary)	49 (28%)	Community
Student's execution difficulties	34 (19%)	Student related
Student's criticism of medical care	30 (17%)	Student related
Community-based social services	23 (13%)	Community
Patient's lifestyle	12 (14%)	Personal

mobility, students gained an important insight into the role of the doctor in patients' transition between care settings.

... My lesson is that, as future doctors, we must take care of the patient beyond the hospital and not just "send and forget" them when hospital treatment is over. We must not ignore problems that can harm their health, such as low literacy or poor access to care. (2nd year)

3.2. Quantitative analysis

To better understand the taxonomy items more frequently identified by students, items coded were counted to identify their frequency, i.e. the percentage of reports containing each item. Table 2 shows the taxonomy items by frequency. Items relating to social and medical issues were the most prevalent, followed by items relating to personal matters. Items referring to community services were least prevalent.

The most frequent items were social support and patients' medical conditions, appearing in 79% and 64% of the reports respectively. Only 36% of the reports contained medication checking items. Going over patients' medications and documenting them on the medication discrepancy form (MDT) [36] was a routine part of all home visits. Students seemed to refer to this item only in cases where medications were a major issue in the home visit. Referring back to students' MDT forms we found discrepancies were reported in 35% of home visits, supporting our assumption.

Additional social determinants students identified while visiting patients included patients' economic condition (37%), living conditions (35%), employment (17%) and access to care (11%). Regarding living conditions, the neighborhood and home conditions such as tidiness and fall hazards were addressed equally.

3.3. Level of elaboration

Students' reports contained, on average, 5.8 ± 2.2 items per report, range: 1–12. Comparing the reports according to students' gender (men, women, and mixed pairs of students) demonstrated a significant difference ($F = 5.38$ ($df = 2$) $p = 0.005$) with women's and mixed pairs' reports having significantly more items than men's (Table 3). Differences were also found between classes. Students from the second year included more items per report than those from the pilot year: $F = 7.25$ ($df = 3$) $p < 0.001$ (Table 3). There were no significant differences by patient characteristics: number of items for male and female patients (5.3 ± 1.2 ; 5.2 ± 2.0 respectively), and for Jewish and Arab patients 5.1 ± 2.1 and 5.2 ± 1.5 respectively.

Offering criticism of medical care reflects higher orders of cognitive level and involvement of the students [37]. Seventeen percent of the students raised their own criticisms of medical care, with those who had more elaborate reports addressing this significantly more than those mentioning fewer items: 28% vs 7.5%, respectively ($t[171] = -2.05$, $p < 0.05$).

Table 3

Number of items per report by gender and class, calculated from 177 ETGAR home visit summaries conducted between 2015–2017.

Criteria	Pair	N	Mean (SD)	P value
Gender	Men	80	5.22 (2.12)	P = 0.005
	Women	60	6.32 (1.80)	
	Mixed	24	6.21 (2.52)	
Class				
Class	Pilot year	92	5.17 (1.82)	P < 0.001
	2nd year	85	6.58 (2.25)	
Overall		177	5.85 (2.16)	

4. Discussion and conclusion

4.1. Discussion

While meeting patients, both in hospital and at home, students observed and acted upon a wide range of determinants affecting patient health. The course and home visits led the students to regard patients in a holistic way, and to "consider the patient as a person within their community, family and workplace" settings [7]. Overall, the students demonstrated their understanding of how social and economic factors affected patients' health, the importance of which has been highlighted by the US Institute of Medicine [10].

The content analysis reflected students' awareness of diverse patient contexts according to the biopsychosocial model. This model highlights the importance of understanding patients' circumstances and needs, the etiology and long-term outcomes of the disease, and how to design effective treatment plans [24,25,38]. It underpins the concept of exposing students early to a variety of patients in different contexts, in order to increase familiarity and decrease stereotypes and biases [39].

Students' summaries reflected a patient-centered attitude and included dimensions such as listening to the patient, and adapting guidance, advocacy, and treatment according to the patient's abilities and preferences [38]. The reports and taxonomy items indicate that the students invested in the beginning of the encounter by listening and building trust; elicited patient perspectives; and demonstrated empathy. These represent three of the "four habits" described in the patient-centered interview model [40].

Although students had Faculty support, the home-visits were challenging as students were given essentially sole responsibility for its execution, quality, and outcomes. In accordance with the experience-based literature, students were involved in the highest level of participation: taking actions that contributed to the patient's care [13]. Students had a chance to "play witness" to the patient, to recognize various aspects of patients' health, and to integrate knowledge, clinical skills, and communication skills [15].

Independent of the level of elaboration, students addressed patients' social support first. The special context of a home visit presumably highlighted this issue. Students' training contributed too, since we assumed students would be prompted to identify medical items, and so focused training on increasing awareness to SDH.

Female and mixed couples reported significantly more items than male couples, this is consistent with other studies where gender differences have been reported in reflective writing [41] and patient centered medical encounters [42]. There are potential practice implications for this finding which might include students working in mixed pairs so patients experience a better visit and students gain from experiencing different communication styles [42]. Students in the second year of the program also wrote richer reports, even though it was a compulsory course by then with no financial reward for their work. A better support program, including structured training, tutorial and feedback, may explain the improved performance of the second-year students [5].

In line with Mangold et al. recommendations [43], the ETGAR course exposes student to patients in their home and community and is delivered longitudinally, embedded into clinical rotations [13,43]. As ETGAR provides students with the opportunity to meet disadvantaged patients in the community setting, we believe that it is an effective educational tool for medical students in their clinical years.

4.2. Conclusions

The ETGAR program described herein, changed the context of student-patient encounters during clinical rotations. As

anticipated, students' summaries showed that meeting patients both in hospital and at home, after preparing a discharge letter in simple language, exposed students to social and personal determinants of health. Encountering patients at home, where patients could retain their autonomy and control, led students to understand the challenges and barriers patients face in the community, especially after discharge from hospital.

Execution of this educational program challenged both students and faculty. Students were required to exit their traditional comfort zone of hospital wards and clinical discussions, and to recruit, visit, and take care of a patient outside the hospital. Faculty needed to provide considerable administrative and learning support. We believe these efforts are worthwhile, and that the course outcomes demonstrate the value of the experience.

4.3. Practice implications

Both the course and the findings described in this paper may assist and direct other institutions in their planning and implementing social determinants and health inequities educational programs.

4.4. Limitations

This paper only considered home-visit summaries, albeit a large and representative sample. Additional research based on broader quantitative and qualitative data, such as student and patient interviews would likely afford deeper understanding of how the course affected students' learning.

A potential limitation relates to our analysis of "richness" of student summaries in terms of the number of taxonomy items mentioned. Some summaries may well have reflected students' understanding of their patients' condition and involvement in greater depth, yet may have contained a limited number of items. Alternative ways of text analysis may provide further understanding.

Credit author statement

All authors were involved in the design of the paper and approved the final version. DS wrote the first draft, designed the study and analyzed the data, MCJR initiated the ETGAR, supervised the research and revised the paper, SS initiated ETGAR along with MCJR, designed the study and revised the paper, MS was in the program team and revised the paper for important intellectual content, and DR provided advice regarding qualitative analysis and revised the paper for content relating to qualitative analysis.

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Declaration of Competing Interest

M.C.J.R., S.S., D.S. and M.S. designed the course and teach on it.

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