

The Influence of Functional Health Literacy on Quality Patient-Pharmacist Communication

Sean R. King, PhD¹, Erica Rogers, PharmD¹, Kyle D. Null, PharmD, PhD²

¹Union University School of Pharmacy, Union, TN

²The University of Mississippi, University, MS

Objective: To examine the relationship between functional health literacy (FHL) and quality patient-pharmacist communication among patients receiving anticoagulation therapy. Additionally, we wanted to assess whether the time patients spent within optimal therapeutic range differed by level of FHL.

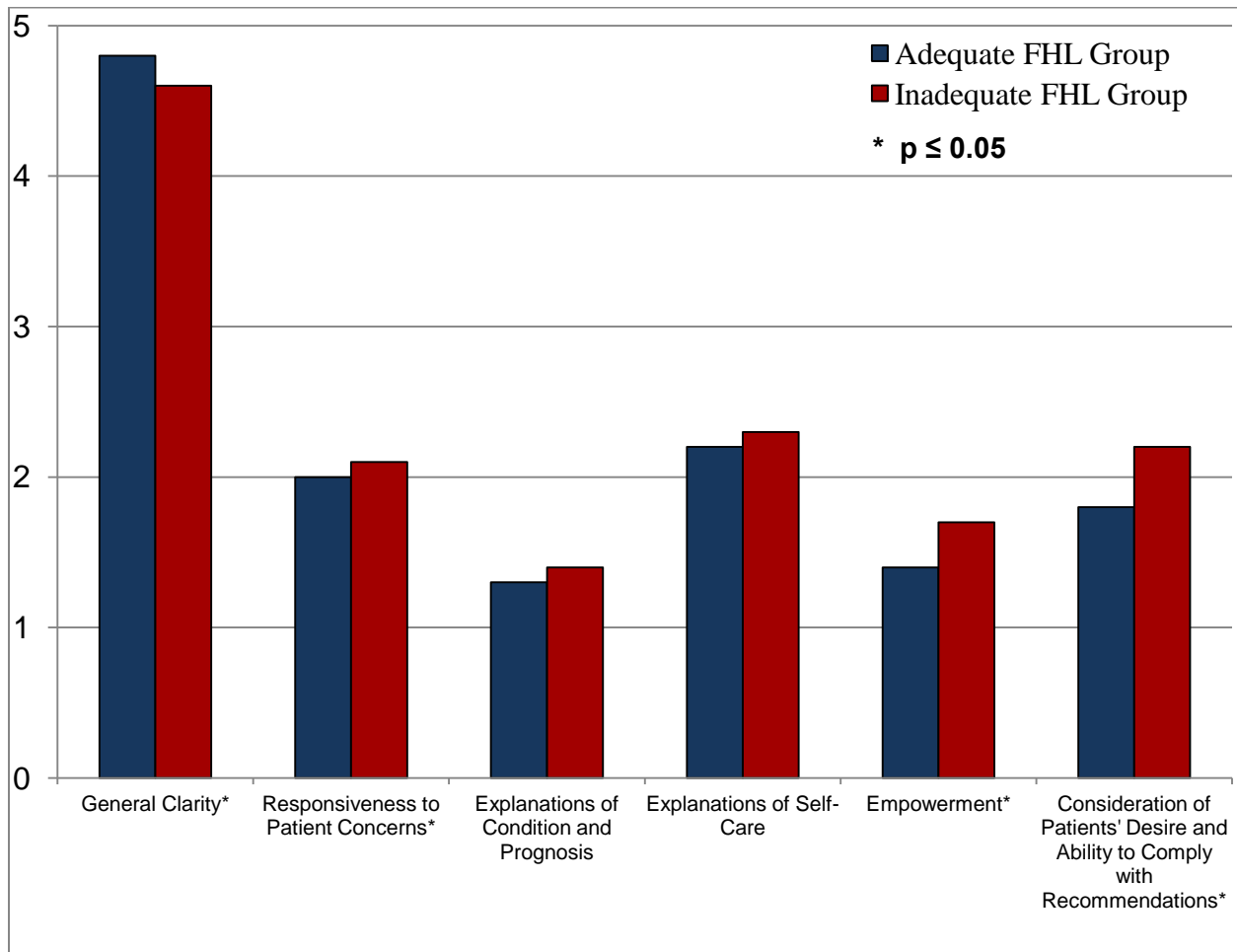
Methods: Two hundred thirty-two patients from two rural, pharmacist-staffed anticoagulation clinics were asked to participate in detailed telephone interviews concerning their interactions with clinic pharmacists. A validated, one-item screening question was used to classify patients as possessing either adequate or inadequate FHL. Patients' perceptions regarding general communication with pharmacists were elicited using six domains from the Interpersonal Process of Care (IPC) questionnaire. The indication, target range, time in range of anticoagulation and race/ethnicity were retrieved from the database of the respective clinic. Independent t-tests were used to assess for differences between the two FHL groups on each of the six IPC domains. Logistic regression was used to measure the association between inadequate FHL and the IPC domains.

Results: Two hundred and twenty patients completed the telephone interviews. Patients possessing inadequate FHL reported significantly worse ratings to the quality of pharmacist communication than did those possessing adequate FHL on four of the six IPC domains ($p \leq 0.05$). The odds of reporting poorer quality interpersonal processes of care across these four domains were significantly greater for those possessing inadequate FHL ($p \leq 0.05$). Patients with inadequate FHL did not differ significantly from those with adequate FHL in terms of time within therapeutic INR range or percent of INRs in therapeutic range over the previous 12 months.

Implications/Conclusions: Patients receiving anticoagulation therapy also possessing inadequate FHL appear more likely to experience poorer communication with pharmacists than patients possessing adequate FHL. Pharmacists may be failing to adequately determine the extent to which educational efforts for these patients' leads to intended consequences. Educational efforts may be needed to improve pharmacists' communication skills in these areas.

Table1: Sample Characteristics (n=220)			
Variable	Adequate Health Literacy Group (n=103) Frequency (%)	Inadequate Health literacy Group (n=117) Frequency (%)	Chi-Square
Gender			
Male	48 (46.6)	63 (53.8)	0.284 (<i>ns</i>)
Female	55 (53.4)	54 (46.2)	
Ethnicity			
Caucasian	89 (86.4)	104 (88.9)	0.609 (<i>ns</i>)
African American	14 (13.6)	13 (11.1)	
Age			
< 65 years	50 (48.5)	46 (39.3)	0.168 (<i>ns</i>)
≥ 65 years	53 (51.5)	71 (60.7)	
Setting			
Private Clinic	74 (71.8)	73 (62.4)	0.137 (<i>ns</i>)
Hospital Clinic	29 (28.2)	44 (37.6)	
Indication			
A Fib	57 (55.4)	75 (64.7)	0.534 (<i>ns</i>)
Paroxysmal A Fib	7 (6.8)	3 (2.6)	
DVT/PE	17 (16.5)	14 (12.1)	
Valve Replacement	13 (12.6)	15 (12.9)	
CVA	2 (1.9)	3 (2.6)	
Other	7 (6.8)	7 (5.1)	
No significant differences ($p>0.05$) were observed between groups for any demographic variable.			

Figure 1: Mean Comparison Between FHL Groups and IPC Domain Scores



Scores for each IPC question ranged from 1 to 5 with lower scores indicating better communication, except for the domain of *general clarity* where higher scores indicated better communication.

Interpersonal Process of Care Questionnaire Rubric: 1- Always, 2- Often, 3- Sometimes, 4- Rarely, 5- Never

IPC Domain	Adequate Health Literacy Group (n=103) Mean (SD)	Inadequate Health literacy Group (n=117) Mean (SD)	Overall (n=220) Mean (SD)	P Value
General Clarity	4.78 (0.52)	4.59 (0.67)	4.68 (0.61)	0.025*
Responsiveness to Patient Concerns	2.04 (0.13)	2.14 (0.31)	2.10 (0.25)	0.002*
Empowerment	1.43 (0.61)	1.71 (1.03)	1.6 (0.87)	0.013*
Consideration of Patients' Desire and Ability to Comply with Recommendations	1.82 (1.08)	2.19 (1.11)	2.02 (1.11)	0.014*
Explanations of Condition and Prognosis	1.31 (0.74)	1.38 (0.77)	1.35 (0.75)	0.47
Explanation of Self-Care	2.25 (0.77)	2.34 (0.79)	2.30 (0.78)	0.38
* Significant at the 0.05 level of significance On the domain of General Clarity, higher scores indicate more favorable responses. On all other domains, lower scores indicate more favorable responses				

Table 3: Interpersonal Processes of Care (IPC) Items Overall and by Level of Health Literacy				
IPC Items	Adequate FHL Group (n=103) Mean (SD)	Inadequate FHL Group (n=117) Mean (SD)	Overall (n=220) Mean (SD)	P Value
General Clarity				
1. Did the pharmacists use medical words you did not understand?	4.68 (0.87)	4.61 (0.75)	4.64 (0.81)	0.51
2. Did you have trouble understanding your pharmacists because they spoke too fast?	4.87 (0.50)	4.58 (0.92)	4.72 (0.77)	0.003*
Responsiveness to Patient Concerns				
2. Did the pharmacists give you enough time to say what you thought was important?	1.08 (0.30)	1.27 (0.58)	1.18 (0.48)	0.002*
3. Did the pharmacists listen carefully to what you had to say?	1.10 (0.33)	1.21 (0.52)	1.16 (0.46)	0.46
5. Did the pharmacists ignore what you told them?	4.94 (0.34)	4.85 (0.52)	4.89 (0.45)	0.103
6. Did the pharmacists take your concerns seriously?	1.06 (0.24)	1.24 (0.68)	1.15 (0.53)	0.008*
Empowerment				
20. Did the pharmacists make you feel that following your treatment plan would make a difference in your health?	1.43 (0.86)	1.62 (1.19)	1.53 (1.01)	0.169
21. Did the pharmacists make you feel that your everyday activities such as your diet and lifestyle would make a difference in your health?	1.43 (0.76)	1.80 (1.19)	1.63 (1.03)	0.006*
Consideration of Patients' Desire and Ability to Comply with Recommendations				
26. Did the pharmacists ask if you might have any problems actually doing the recommended treatment?	2.27 (1.68)	2.83 (1.77)	2.57 (1.74)	0.019*
27. Did the pharmacists understand the problems you might have in doing the recommended treatment?	1.37 (0.80)	1.56 (0.85)	1.47 (0.83)	0.099
Explanations of Condition and Prognosis				
7. Did the pharmacists give you enough information about your health problems?	1.33 (0.77)	1.46 (0.89)	1.40 (0.84)	0.241
8. Did the pharmacists make sure you understand your health problems?	1.28 (0.77)	1.30 (0.76)	1.29 (0.76)	0.865
Explanation of Self-Care				
13. Did the pharmacists tell you what you could do to take care of yourself at home?	2.20 (1.35)	2.38 (1.40)	2.30 (1.37)	0.330

14. Did the pharmacists tell you how to pay attention to your symptoms and when to call the doctor?	1.71 (1.17)	2.13 (1.42)	1.93 (1.32)	0.017*
15. Did the pharmacists clearly explain how to take the medicine?	1.24 (0.77)	1.49 (0.93)	1.37 (0.87)	0.035*
16. Did the pharmacists go over all the medicines you are taking?	2.11 (1.44)	1.79 (1.32)	1.94 (1.38)	0.097
17. Did the pharmacists give you written instruction about how to take the medicine?	3.11 (1.80)	3.15 (1.82)	3.13 (1.81)	0.875
18. Did the pharmacists tell you the reason for taking each medicine?	3.27 (1.46)	3.25 (1.44)	3.26 (1.45)	0.903
19. Did the pharmacists tell you about side effects you might get from your medicine?	2.10 (1.24)	2.21 (1.41)	2.15 (1.33)	0.546
*Significant at the 0.05 level of significance On the domain of General Clarity, higher scores indicate more favorable responses. On all other domains, lower scores indicate more favorable responses				

Table 4: Odds of Poor Interpersonal Processes of Care for Patients with Inadequate Functional Health Literacy (reference) vs. Adequate Functional Health Literacy				
	Unadjusted		Adjusted	
	Adequate FHL Group OR (95% CI)	P Value	Adequate FHL Group OR (95% CI)	P Value
General Clarity	1.69 (1.05-2.72)	0.032	1.88 (1.13-3.10)	0.014
Responsiveness to Patient Concerns	0.12 (0.3-0.55)	0.006	0.13 (0.03-0.56)	0.006
Empowerment	0.67 (0.47-0.94)	0.019	0.71 (0.50-1.00)	0.051
Consideration of Patients' Desire and Ability to Comply with Recommendations	0.73 (0.57-0.94)	0.015	0.74 (0.58-0.96)	0.022
Explanations of Condition and Prognosis	0.87 (0.61-1.26)	0.467	0.85 (0.59-1.23)	0.389
Explanation of Self-Care	0.86 (0.61-1.21)	0.375	0.88 (0.62-1.25)	0.480