Original Article

Referral Patterns to an Ophthalmic Outpatient Clinic in a Tertiary Eye Care Center in Iraq

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ABSTRACT

Purpose: We aim to conduct a comprehensive review of outpatients at a tertiary ophthalmology clinic to evaluate various aspects including the spectrum of eye disorders, referral patterns, reasons for referral, and patient self-assessment, with a particular focus on self-referrals.

Study Design: A cross-sectional study.

Place and Duration of Study: Ibn Al-Haitham Teaching Eye Hospital from April to May, 2023.

Methods: Referral letters were grouped into the primary health center (PHC), secondary hospital, internal referral and private clinic. Referral letter quality was assessed based on clinical information and particular request.

Results: A total of 1367 individuals aged 40.8 ± 22.17 years were eligible for study. There were 19.2% referrals form PHC, 18.4% from secondary hospitals, 10.7% from private clinics, 3.3% were internal referrals, 37.2% were self-referred and 11.3% had medical or surgical follow-up. Blurred vision was the predominant complaint of 677 (51.6%) patients. Out of 659 referral letters, 25% scored two essential information items, 5.2% scored three, and only 0.8% scored four items. The majority (97.2%) of letters provided specific requests. Among all, 26.3% of PHC, 38.2% of hospitals, 34.9% of private clinics, 21.7% self-referred and 51.1% of internally referred patients considered their situations difficult.

Conclusion: Majority of cases seen in ophthalmology tertiary centers consist of common conditions that could be effectively managed by PHCs and general hospitals. Improved referral standards for specialized medical institutions may reduce burden on tertiary hospitals.

Key Words: Tertiary Care Center, Outpatient Clinic, Primary Health Center.

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INTRODUCTION

An estimated 253 million individuals worldwide are affected by vision impairment, with the majority living in low- and middle-income countries.[1,2] Iraq has a population of over 40 million.[2] The last three decades of conflict and turmoil have greatly hindered the provision of medical services, health promotion initiatives, medical surveys, and medical research, resulting in substantial adverse effect. Currently, there is lack of up-to-date comprehensive survey conducted throughout the country to determine the extent and underlying factors contributing to impaired vision. Given the current volatile geopolitical scenario in Iraq, it is unlikely that comprehensive population-based research on impaired vision would be feasible in the foreseeable future. The lack of accurate data about impaired vision in Iraq hinders the establishment of national eye health initiatives and the attainment of the objectives set forth by the Vision 2020 initiative.[3]

Nevertheless, hospitals' statistics on blindness provide limited insights to national health bodies.

Cataract is the principal cause of visual impairment and the primary reason for individuals seeking tertiary eye care centers.[4,5] Referral of patients is an essential part of the health care delivery system, since it fills the gap between the various levels of care and the various medical specializations.[6] The typical reasons for referring a patient to a tertiary center include patient's request, reassuring the patient and referring medical staff, the requirement for specialized tests and diagnosis, treatment recommendations, and a second medical opinion.[7] Maximum benefits for patients and healthcare providers are achieved when referrals are accurate, suitable, effective, and useful to the referring medical staff.[8] Regular auditing of ophthalmology tertiary center outpatients demographics and reason of consultation along with rate and types of referral are essential to optimize local health care planning and enhance the overall quality of health and management of resources.[9] This study aims to review the outpatients of a major tertiary ophthalmology center in Baghdad in order to assess the range of eye conditions that have been examined, the rate, type, and cause of referral, as well as the patient's own assessment of their condition, with a focus on self-referrals.

METHODS

This cross-sectional study was conducted at Ibn Al-Haitham Teaching Eye Hospital and involved individuals visiting the outpatient clinics from April 1st to May 1st, 2023. The study received approval from the hospital's ethical and research committee under the registration number (EAC-4523), and written informed consent was obtained from the participants. All outpatients who attended clinic during the study period and any age and sex were included. Emergency cases were excluded. Data were collected using a structured questionnaire.

Patients holding a referral letter were systematically classified according to the origin of the referral, with delineations encompassing primary health center (PHC), secondary hospital, internal referral (within the same hospital system, involving transitions between distinct departments), and private clinic. Patients who did not provide a referral letter were classified as self-referral. Additionally, some patients were referred after medical or surgical interventions in private clinics run by ophthalmologists working in the same hospital. These were categorized as follow up-cases.

The evaluation of referral letters' quality was conducted based on guidelines derived from international literature. These guidelines consisted of two criteria: assessing the provision of clinical information and the formulation of a specific request.[10,11] To fulfill the "provision of clinical information" criterion, referral letters were considered satisfactory if they included at least four of the following clinical items:

1. Symptoms of the patient; 2. Clinical examinations; 3. Any investigations conducted; 4. Any treatment administered; 5. Current medications.

Additionally, the "formulation of specific request" criterion was considered met if at least one of the following requests was included in the referral letter:

1. Request for a definitive diagnosis, 2. Request for treatment, 3. Request for a management plan.

Statistical analysis was conducted using the Statistical Package for Social Sciences software for Windows version 25 (IBM Corp., Armonk, N.Y., USA). The observational data was presented in the form of frequencies and percentages. Continuous variables were presented as mean, standard deviation (±SD), or range. To compare the proportions of nominal or ordinal variables among different groups, statistical comparisons were performed using the Chi-square test or Fisher's exact tests, depending on appropriateness. Statistical significance was determined as a P-value less than 0.05.

RESULTS

A total of 1367 patients were included in the study, with a mean age of 40.8 ± 22.17 years. The age range of the patients varied from 3 months to 92 years. The study population consisted of both males and females in almost equal proportions. Detail is shown in Table 1.

Among the tertiary center outpatients, the majority, 677 (51.6%), reported blurred vision as their primary complaint. Out of these patients, 258 (38.1%) were self-referrals and 151 (22.3%) were referred from PHC.

The next three most frequent complaints were strabismus, reported by 106 patients (8.1%), ocular pain reported by 100 patients (7.6%), and itching and burning sensation reported by 62 patients (4.7%). Among these complaints, PHC referrals accounted for 22 (20.8%), 19 (19%), and 20 (32.3%) respectively,

while self-referrals accounted for 57 (53.8%), 44 (44%), and 24 (38.7%) respectively (Figure 1).

Table 1: *Demographics and reasons for visiting the specialized center.*

Variable	Frequency	%
Age		
<1	3	0.2
1-12	165	12.1
13-30	344	25.2
31-60	525	38.4
>60	330	24.1
Gender		
Female	700	51.2
Male	667	48.8
Type of referral		
Referred from PHC	262	19.2
Referred from Hospital	251	18.4
Referred from Private clinic	146	10.7
Referred from specialty clinic	45	3.3
Self-referral	508	37.2
Follow up	155	11.3
First visit		
yes	520	38.0
No	847	61.9

Other more serious complaints such as floaters were reported by 46 patients (6%), trauma by 47 patients (3.6%), diplopia by 32 patients (2.4%), and field defect by 2 patients (0.2%). After blurred vision, the most common complaints from PHC referrals were strabismus (22 patients, 8.4%), followed by headache (20 patients, 6.7%), and eye pain (19 patients, 7.3%). Among hospital-referred patients, follow up (19 patients, 7.7%), red eye (17 patients, 6.7%), and pain (14 patients, 5.6%) were the most frequent symptoms. Among patients referred from private clinics, the most common complaints were eye pain (10 patients, 6.8%), routine checking (8 patients, 5.6%), and trauma (6 patients, 4.1%).

Assessment of 659 referral letters revealed that165 (25%) scored two items, 34 (5.2%) scored three items and only 5 (0.8%) of them contained four required clinical information items. However, majority of the letters 641 (97.2%), did provide a specific request. Only 5 (0.8%) referral letters satisfied both the requirements for clinical information and a specific request. All the adequate referral letters were from hospitals, while 249 (96.9%) of PHC referring letters were limited to patient's symptoms. Table 2 describes the details.

Patients were asked to evaluate the difficulty of their own condition as an indicator of their knowledge (Figure 2). The overall response rate was 94.1%. Among the respondents, 143 patients (10.5%) were unsure about the difficulty of their condition.

Symptoms that were associated with the difficult rating were flashes 68% (p=0.001), proptosis 71.4% (p=0.093 and photophobia 58.8% (p=0.064). Details are shown in Table 3.

Table 2: *Adequacy of referral request in various referral types.*

Referral letter content		Total	PHC n= 262		Hospital n=251		Private clinic n=146		P value
		No (%)	No	%	No	%	No	%	
Clinical information									
Symptoms	Yes	595 (90.3)	259	98.9	220	87.6	116	79.5	<0.001
	No	64 (9.7)	3	1.1	31	12.4	30	20.5	
Previous examination findings	Yes	207 (31.4)	8	3.1	108	43	91	62.3	<0.001
	No	452 (68.6)	254	96.9	143	57	55	37.7	
Preformed investigations	Yes	31 (4.7)	1	0	24	10	6	4	<0.001
	No	628 (94.3)	261	99.9	227	90	140	96	
Provided treatment	Yes	40 (6.1)	0	0	38	15	2	1	<0.001
	No	619 (93.3)	262	100	213	85	144	99	
Current medication	Yes	34 (5.2)	3	1	16	6	15	10	<0.001
	No	625 (94.8)	259	99	235	94	131	90	
Specific request									<0.001
Definite diagnosis		80 (12.1)	24	9.2	24	9.6	32	21.9	
Management plan		421 (63.9)	180	68.7	161	64.1	80	54.8	
Specific investigation		27 (4.1)	1	0.4	24	9.6	2	1.4	
Treatment		113 (17.1)	47	17.9	36	14.3	30	20.5	
Not given		18 (2.7)	10	3.8	6	2.4	2	1.4	

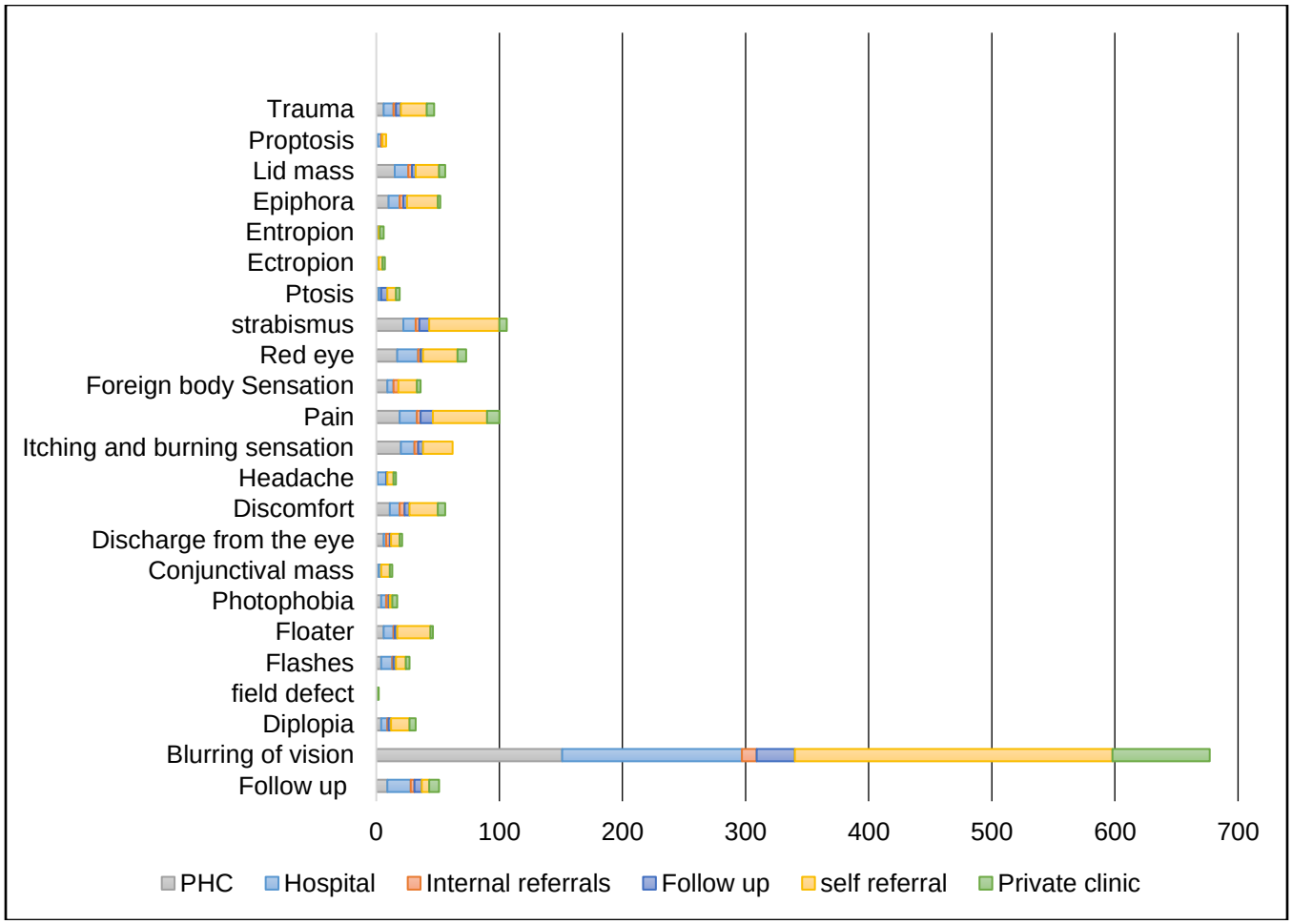

Figure 1: Signs and symptoms according to referral type.

DISCUSSION

Overcrowding in tertiary hospitals not only disrupts the healthcare delivery system but also affects patients' trust in primary care facilities.[12,13] Healthcare delivery systems are implemented to ensure efficient utilization and distribution of medical resources by offering different levels of care and coordinating the roles of various types of hospitals.[14] This is the first Iraqi study that looked into the pattern of ophthalmology tertiary center outpatients and quality of referring letter.

During a one-month period, the tertiary center had a total of 1367 outpatients. Among them, 61% were first-time visitors, and the largest number of referrals came from PHC. Despite being a teaching center with 30 board-certified ophthalmologists the number of outpatients exceeded the capacity of the healthcare providers, leading to overcrowding and increased waiting times.

Since 2015, the center has implemented a referral system, however, more than a third (508) of the patients in this study were self-referred. Among these, 196 (29%) reported refractive errors as their primary complaint, with females constituting 62% of this group. Furthermore, 124 out of 262 (47.3%) of the referrals from PHCs were for patients with refractive errors. While refractive errors can be effectively managed in primary eye care centers, the high number of referrals for this condition to the tertiary center indicates inappropriate utilization of resources. Similar findings were reported by Eze et al. and Okrent et al.[8,15] This referral pattern restricts the advantages that are anticipated from adhering to the standard referral system. It also calls for proactive measures from healthcare planners to guarantee the availability of adequate human and material resources for effectively treating common eye diseases at both primary and secondary levels of eye care.[16] The WHO has published a guide for an action plan targeting eye care.[17]

Table 3: *Patients evaluation of their own conditions.*

Eye condition		Total Cases	Easy n=145		Moderate n=158		Difficult n=119		P value
			Frequency	%	Frequency	%	Frequency	%	
Blurring of vision	Yes	582	117	20.1	261	44.8	204	35.1	0.044
	No	562	147	26.2	225	40	190	33.8	
Diplopia	Yes	28	3	10.7	13	46.4	12	42.9	0.273
	No	1116	261	23.4	473	42.4	382	34.2	
Flashes	Yes	22	5	22.7	2	9.1	15	68.2	0.001
	No	1122	259	23.1	484	43.1	379	33.8	
Floater	Yes	35	4	11.4	16	45.7	15	42.9	0.228
	No	1109	260	23.4	470	42.4	379	34.2	
Photophobia	Yes	17	4	23.5	3	17.6	10	58.8	0.064
	No	1127	260	23.1	483	42.9	384	34.1	
Conjunctival mass	Yes	11	3	27.3	4	36.4	4	36.4	0.907
	No	1133	261	23	482	42.5	390	34.4	
Discharge from the eye	Yes	14	6	42.9	4	28.6	4	28.6	0.203
	No	1130	258	22.8	482	42.7	390	34.5	
Discomfort	Yes	51	9	17.6	23	45.1	19	37.3	0.641
	No	1093	255	23.3	463	42.4	375	34.3	
Headache	Yes	13	2	15.4	8	61.5	3	23.1	0.376
	No	1131	262	23.2	478	42.3	391	34.6	
Itching and burning sensation	Yes	49	10	20.4	26	53.1	13	26.5	0.269
	No	1095	254	23.2	460	42	381	34.8	
Pain	Yes	77	19	24.7	30	39	28	36.4	0.810
	No	1067	245	23	456	42.7	366	34.3	
Foreign body Sensation	Yes	30	9	30	13	43.3	8	26.7	0.553
	No	1114	255	22.9	473	42.5	386	34.6	
Ptosis	Yes	12	2	16.7	8	66.7	2	16.7	0.223
	No	1132	262	23.1	478	42.2	392	34.6	
Lid mass	Yes	42	9	21.4	20	47.6	13	31	0.788
	No	1102	255	23.1	466	42.3	381	34.6	
Ectropion	Yes	7	1	14.3	1	14.3	5	71.4	0.114
	No	1137	263	23.1	485	42.7	389	34.2	
Entropion	Yes	5	0	0	3	60	2	40	0.457
	No	1139	264	23.2	483	42.4	392	34.4	
Epiphora	Yes	38	12	31.6	12	31.6	14	36.8	0.302
	No	1106	252	22.8	474	42.9	380	34.4	
Red eye	Yes	60	20	33.3	19	31.7	21	35	0.098
	No	1084	244	22.5	467	43.1	373	34.4	
Proptosis	Yes	7	0	0	2	28.6	5	71.4	0.093
	No	1137	264	23.2	484	42.6	389	34.2	
Squint	Yes	89	26	29.2	41	46.1	22	24.7	0.105
	No	1055	238	22.6	445	42.2	372	35.3	
Trauma	Yes	36	7	19.4	12	33.3	17	47.2	0.273
	No	1108	257	23.2	474	42.8	377	34	

The evaluation of referral letters received during this study revealed that patient's symptoms were the most commonly reported clinical information item (90.3%) and only a small percentage (0.8%) of the letters satisfied four evaluated items. This was significantly lower compared to the results reported by Eze et al and Grol et al, (5.2% and 35% respectively).[8,10] A potential explanation for this could be the inadequate availability of investigation tools in primary health centers and numerous hospitals within the districts of Iraq, resulting in approximately 10% of hospital referrals specifically requesting investigations. In contrast, a specific request was consistently formulated in 97.2% of the referral letters in this study which was high compared to the scores of 59% in Grol et al's, study and 2.8 in Eze et al's, study.[8,10] In our study, referral letters are typically structured with the five core items, but often most of these items are overlooked, especially when the letter is written by an unexperienced junior trainee or during times of patient overload in primary health centers. This may explain why physical examination findings and previous

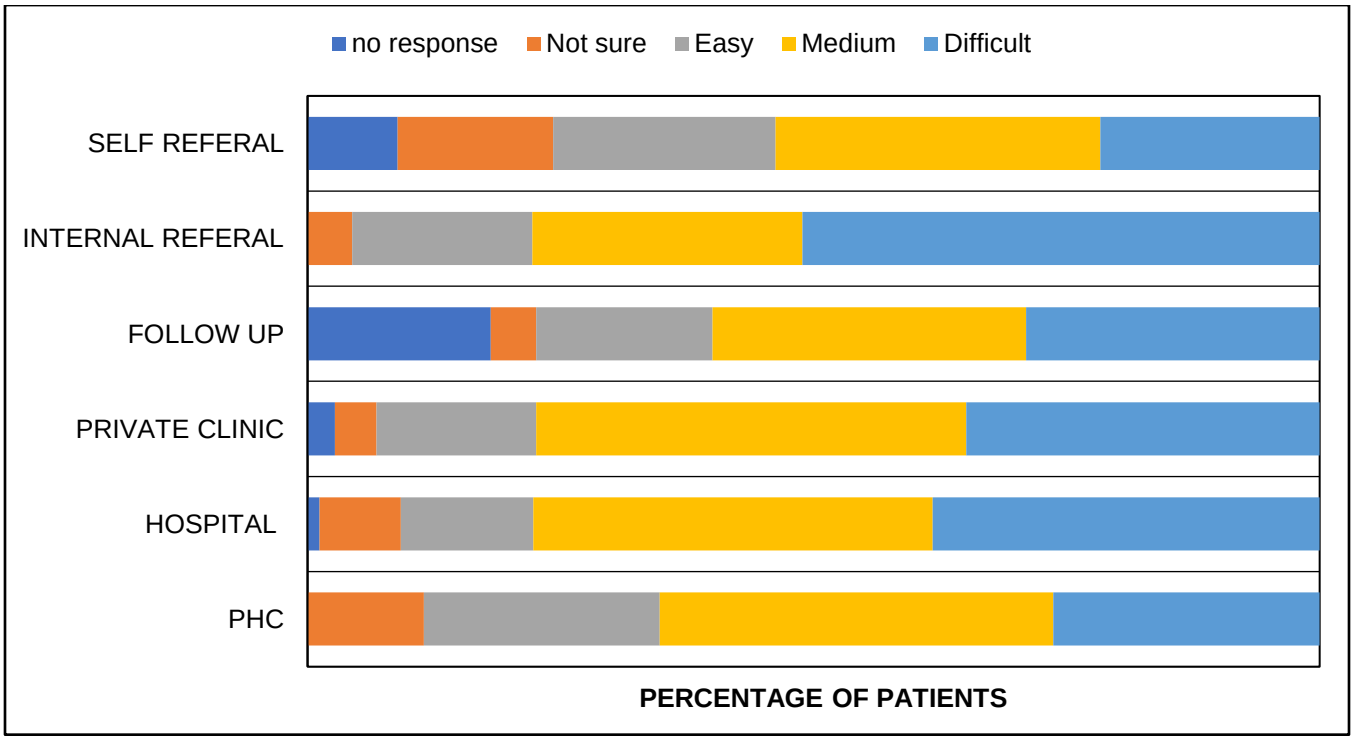

Figure 2: Shows that the perceived difficulty of the cases among different referral types.

prescribed treatments were utterly low reported in this study, particularly for cases involving conjunctivitis and allergy where atrial of treatment should have been given before referral.

To address these issues, it would be beneficial to provide training to general practitioners (GPs) in primary health centers on referrals to ophthalmic and other specialist outpatient clinics.[18] This training can improve communication between GPs and specialists, leading to better quality referral letters and reduced waiting times for patients.[17]

The level of patient knowledge regarding their ophthalmic condition can influence their perception of the referral system's hierarchy.[19] Our results show that patients who self-refer or come from PHCs are less likely to view their cases as difficult compared to those referred internally or from hospitals. This suggests that the perceived difficulty of the case is not the primary motivation for patients to directly approach tertiary centers. Instead, it seems to be a shortcut taken because PHCs often refer even relatively simple ophthalmic cases to tertiary centers due to limited availability of specific investigations and trained personnel.[20]

CONCLUSION

The majority of cases seen in ophthalmology tertiary centers consist of common conditions that could be effectively managed by PHCs and general hospitals. To alleviate the issue of overcrowding in tertiary hospitals, it is essential to enhance referral guidelines for specialized medical institutions. Implementing policy changes aimed at improving efficiency would involve assigning initial care responsibility to community eye specialists, who can then refer patients to tertiary hospitals, when necessary, rather than having non-ophthalmology practitioners refer patients directly from primary-care facilities to tertiary hospitals. Furthermore, the establishment of an electronic referral center could enhance communication, prioritize urgent cases, and enable the referral of simpler cases back to PHCs for completion of treatment and follow-up.

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Patient's Consent: The researchers followed the guidelines set forth in the Declaration of Helsinki.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: The study was approved by the Institutional review board/Ethical review board **(257).**

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Ali Nema Abushnein; Consultant Ophthalmologist: *Design, Data acquisition, Manuscript editing.*

Wissam Yosif; Ophthalmologist: *Design, Literature search, Data analysis, Statistical analysis, Manuscript preparation, Manuscript review.*