



Evaluating Pharmacist Level of Involvement in disease Prevention Activities in Nigeria

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Abstract

Evidence exists in literature to support involvement of community pharmacists in a broad range of preventive health activities especially in developed countries. There is a need to explore extent of pharmacists' involvement in resource limited countries. The objectives of this study were to describe community pharmacists' involvement in disease prevention strategies and explore facilitators and barriers to involvement. A forty item pretested self-completion questionnaire with 0.944 reliability was administered to a convenient sample of 500 community pharmacists in 3 major cities in Nigeria. Self-reported involvement in preventive health strategies was evaluated on a 5 point response scale ranging from 1 (Not involved at all) to 5 (very much involved). Response rate was 90.6% (453/500). Mean scores on face to face delivery of preventive health service was consistently higher than leaflet or text message. Pharmacists were mostly involved in preventive health services in the area of hypertension mean (4.38±0.91) followed by Diabetes (4.35±0.86) ST1 (4.27±0.84) and weight reduction (3.39±1.37). Areas of least involvement include osteoporosis (2.2±1.25), hyperlipidemia (2.9±1.43), travel health (2.33±1.33) and cancer risk assessment (1.67±0.96). Lack of adequate training was the most frequent reason for low level of involvement. Community pharmacists in Nigeria are involved to varying extent in a wide range of preventive health activities. Areas of low involvement in this study indicate a need for capacity building in order to increase level of community pharmacist involvement in preventive health activities.

1 Introduction

The cost of effectiveness of health systems based mostly on curative care is still a subject of debate.¹⁻³ Some authorities have therefore advocated adoption of preventive health care as a tool for ensuring a healthier population and reducing skyrocketing health care cost.⁴⁻⁵

Community pharmacies have long been recognized as a very suitable site for delivering preventive health services.⁶⁻⁸ Apart from proximity to communities they serve; the pharmacist has been described as the most accessible of all health care providers.⁹⁻¹² Most pharmacies have long and flexible opening hours, do not require previous appointment and a sizable number of people visit the pharmacy at least once a year and

many consult pharmacists on a wide range of health issues.¹³⁻¹⁴

These unique characteristics have the potential to provide a large population pool in community pharmacies that could be a target of preventive health services. Evidence exists in literature to support involvement of pharmacists in a broad range of activities including advice on preventive health,¹⁵⁻¹⁶ diet and healthy eating¹⁷⁻¹⁸, smoking cessation,¹⁹⁻²⁰ sexual health services including emergency hormonal contraceptives,²¹⁻²² cardiovascular risk reduction,²³⁻²⁵ cancer prevention,²⁶ osteoporosis risk assessment and reduction,²⁷⁻²⁸ and other aspects of preventive health care.²⁹⁻³⁰ Most of these studies however have been carried out in developed countries. There is little or no evidence base for a similar level of involvement in preventive health services in a resource limited area of the

world like Nigeria. This study seeks to explore the level of involvement in preventive health care services among Nigerian pharmacists. The objectives of this study were to describe community pharmacists' involvement in disease prevention strategies and explore facilitators and barriers to involvement.

2 Materials and Methods

A total 40 preventive health services were identified from literature search. A questionnaire was developed based on preventive health strategies identified. Section A dealt with demographic profile of superintendent pharmacist while section B, C, and D explored extent of involvement in various preventive health activities by face to face, use of leaflets and text messages respectively. Self-reported involvement of pharmacists was evaluated on a 5 point response scale ranging from 1 (Not involved at all to 5 (very much involved). Three modes of delivery of preventive health services were explored – face to face, use of leaflets and use of text messages. The last section explored reasons for low level of involvement in preventive health strategies.

2.1 Data collection/analysis

A cross sectional survey of 500 community pharmacists was carried out in three cities in South west and South Nigeria. Pharmacists were asked to indicate their perceived level of involvement on a 5 point Likert type response scale as follows; Not involved at all=1; Not involved =2; Involved =3; Very involved=4; and Very much involved=5. Data was entered into SPSS version 20 package. Ratings were treated as interval data suited for quantitative analysis. Mean scores were computed for each variable on a scale of 1-5; with a midpoint=3. Percentage involvement was computed by summing up proportion of involved, very involved and very much involved responses. Possible association between demographic variables and responses were explored using chi-square tests.

2.2 Ethical approval

Ethical approval was obtained from the Delta State University Health Research Ethics Committee, Oghara, Delta state, Nigeria

3 Results

Response rate was 90.6% (453/500). The questionnaire showed a high level of internal consistency as seen from a Chronbach's alpha value of 0.944.

More than one third (39.5%) of the pharmacies had been in operation for 5 years or less and nearly three quarters of respondents (67.3%) had no additional qualifications. Demographic details of participating pharmacists are shown in table 1.

Mean scores on face to face mode of delivery of preventive health services was consistently higher (3.19 ±1.16) than use of

leaflet (2.11± 1.56) and text messages (1.61±1.04). Pharmacists were most involved in preventive health services in the areas of lifestyle advice (4.00±1.03), followed by sexual health (3.72±1.01) and nutritional advice/ food safety (3.63±1.18), Figure 1.

Table 1: Demographic characteristics of pharmacies surveyed

Item	N(%)
Location	N=453(100%)
Benin City	132 (29.1)
Lagos	258 (57.0)
Warri	63 (13.9)
Duration of operation (yrs)	
1 – 5	179 (39.5)
6 – 10	127 (28.0)
11 – 15	34 (7.5)
16 – 20	37 (8.2)
> 20	76 (16.8)
Pharmacists' years of qualification	
1-10	252 (55.6)
11-20	117 (25.8)
21-30	47 (10.4)
Above 30	37 (8.2)
Additional qualifications	
None	305 (67.3)
Phd	1 (0.2)
FPC Pharm.	18 (4.0)
MSc	54 (11.9)
MPH	5 (1.1)
Pharm D	35 (7.7)
MBA	34 (7.5)
Others	1 (0.2)

Specific areas of high involvement include high blood pressure (4.38±0.91), diabetes (4.35±0.86), STIs (4.27±0.84). Self-reported involvement in the areas of osteoporosis, asthma control, and vaccine administration were quite low with mean scores 2.2±1.25, 2.9 ±1.43, and 1.96±0.86 respectively. Specific details of pharmacist's involvement in preventive health services are shown in table 2.

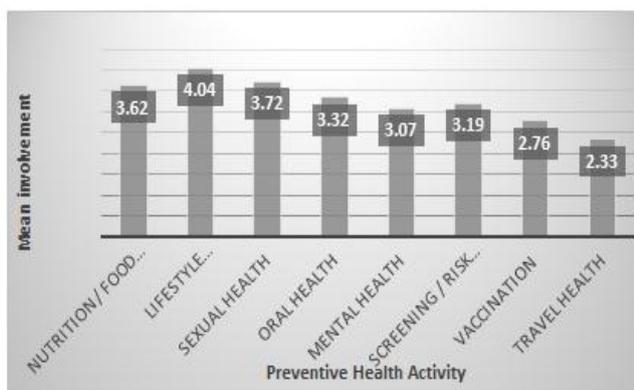


Fig 1: Preventive health activities by community pharmacists

A Chi Square test was performed to evaluate association between demographic variables and total involvement in preventive health activity. Year of qualification, duration of pharmacy operation, and additional qualifications in public health were significantly associated with involvement in preventive health care activities. ($X^2=558.96$, df 300, $P<0.001$; $X^2=793.03$, df 404, $P<0.001$; $X^2=131.55$, df 101, $P=0.0022$; and $X^2=938.45$, df 707, $P<0.001$) respectively.

Location of pharmacy and display of leaflet in pharmacy was not significantly associated with involvement ($X^2=208.60$, df 360, $P=0.360$, $X^2=124.56$, df 101, $P=0.056$), respectively.

Lack of adequate training was the reason given for non-involvement by more than half of the pharmacists 248 (54.7%) followed by lack of public acceptance 147 (32.5%). Other reasons included lack of legislative backing and lack of demand for services. Table 3 shows the reasons for none involvement of pharmacists in preventive health services.

4 Discussions

Community pharmacists have been involved in preventive health activities since the beginning of the century and preventive health roles for pharmacists are rapidly expanding.³¹⁻³² This is especially so in developed nations of the world.³³ However, such an evidence base is still lacking in developing and resource limited countries.³⁴⁻³⁵ This study revealed that Nigerian community pharmacists are modestly involved in preventive health services. For instance in the area of advice about lifestyle modification, level of involvement ranged from 75% to 95.4%.

Despite a high level of self-reported involvement, only a handful of published articles in the area of pharmacists' involvement in preventive health services have their setting in Nigeria.³⁶⁻³⁹ This might suggest a need for documentation of preventive health activities by community pharmacists. Documentation is a critical step in demonstrating impact of interventions.⁴⁰ and the more activities are documented, the quicker preventive health roles of pharmacists will be acceptable to the public and other

health care professionals in Nigeria. A cross sectional study evaluating ideal and actual involvement of pharmacists in public health activities showed that pharmacists in Quebec were most involved in screening for hypertension and diabetes and least involved in dental health.⁴¹ In the present study, lifestyle advice was the area of involvement by most pharmacists, followed by sexual health and disease screening.

Pharmacists' involvement in oral health was also quite modest. This profile of involvement differs from the findings of a review of literature focusing on developed countries which showed that pharmacists in the UK were mostly involved in smoking cessation, healthy eating, provision of emergency hormonal contraceptive, as well as drug abuse and addiction prevention.⁴² The differing profiles might be a reflection of the characteristics of pharmacy practice in the different settings.

The preference for face to face preventive health services is understandable given the fact that leaflet based approach involves extra cost and requires some training in order to acquire skills in developing patient education materials. The use of bulk text messages and the social media in delivering preventive health services offer a huge potential that community pharmacists in Nigeria are not exploiting at present. Telephone counseling, defined as any type of intervention aimed at delivering health counseling through the telephone or mobile phone given by a health care provider (doctor, nurse, dietician, pharmacist or social worker) has been shown to be effective in delivering interventions.⁴³ There is a need for pharmacists to tap into this mode of delivering preventive health messages in order to reach more people.

Lack of training was also the reason adduced for low level of involvement by majority of pharmacists in this study, followed by lack of public acceptance of preventive health roles, lack of space, finance and time. The importance of training has been a recurring theme in pharmacist related discourse.⁴⁴ It is therefore very vital to focus training initiatives on areas of low involvement identified in this study. These areas include lipid management, immunization advocacy and administration, travel health, and use of printed materials and information technology in pharmacy practice.

The significant association between length of existence of pharmacy, year of pharmacists' qualification, additional qualifications in public health and the level of involvement in preventive health activities suggests that the more matured and experienced a pharmacist is the greater the likelihood of involvement in preventive health activities.

5 Conclusions

Community pharmacists in Nigeria are involved in preventive health strategies to varying extent. Hypertension diabetes, weight reduction are areas of high level of involvement while activities in the area of immunization, oral and mental health,

food safety, osteoporosis, dyslipidemia and cancer awareness and prevention were low. There is a need for training programs to develop preventive health capacity and improve involvement of community pharmacist in preventive health services.

Table 2: Extent of Pharmacist Involvement in Preventive health Activities Services

Item	Verbal	Leaflet	Text message	% Involvement ^a
Nutrition and food safety		Mean±SD^b		
Nutrition counseling	4.03±1.00	2.24±1.00	1.68±1.06	92.5
Food safety advise	3.58±1.23	1.89±0.87	1.62±1.0	82.1
Drinking water quality	3.62±1.17	1.97±1.18	1.58±0.99	82.6
Promoting point of care water treatment	3.78±1.05	1.52±0.95	1.11±0.98	88.6
Food and water safety	3.13±1.45	1.99±0.33	1.02±0.46	56.0
Lifestyle intervention				
Promoting physical activity	4.02±1.03	2.15±1.14	1.78±1.20	95.3
Advise on alcohol	3.8±1.19	2.21±1.21	1.67±1.10	85.3
Smoking cessation	3.72±1.09	2.1±0.92	1.61±1.0	88.5
lifestyle advise - Diabetes	4.35±0.86	2.45±1.30	1.83±1.28	95.4
Hypertension	4.38±0.91	2.55±1.37	1.86±1.21	96.0
Asthma	3.76±1.07	2.17±1.13	1.65±1.01	91.0
Sexual health				
Family planning	3.49±1.06	2.37±1.23	1.71±1.07	83.8
Advise about hormonal contraception	3.47±1.19	2.26±1.15	1.62±0.96	82.0
Prevention of STIs	4.27±0.84	2.27±1.23	1.85±1.28	97.4
Promoting use of preconception folic acid	3.56±1.24	2.12±1.12	1.65±1.10	79.8
Promoting use of male condoms	4.58±0.92	-	-	95.8
Promoting use of female condoms	2.59±0.52	-	-	47.7
Stocking hormonal contraceptives	4.09±1.29	-	-	86.2
Oral health				
Promoting oral hygiene	3.69±1.15	2.07±1.00	1.65±1.05	82.8
Promoting use of dental floss	2.67±1.46	-	-	46.7
Promoting use of sugar free medicines	3.59±1.35	-	-	75.6
Mental Health				
Advise on depression and mental health	3.07±1.04	1.9±0.94	1.59±0.98	75.3
Disease screening/ risk assessment				
Screening for Diabetes	4.1±0.85	-	-	84.3
- High blood pressure	4.1±0.91	-	-	93.8
- Osteoporosis	2.2±1.25	-	-	35.5
- Hyperlipidemia	2.9±1.43	-	-	54.5
- Obesity	3.39±1.37	-	-	72.9
Cancer risk assessment	1.67±0.96	-	-	13.2
Cardiovascular risk assessment	4±1.20	-	-	70.4

Very much involved=5; very involved=4; involved=3; not involved=2; not involved at all=1; a= involved +very involved+ very much involved, b=Scale 1-5; midpoint=3

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7 Conflict of interests

The authors report no conflicts of interest.

Table 3: Extent of Pharmacist Involvement in Preventive health Activities Services

Item	Verbal	Leaflet	Text message	% Involvement ^a
Vaccination				
	Mean ±SD^b			
Advise on - immunization schedule	2.87±1.21	1.9±0.92	1.62±1.02	62.6
- immunization safety	3.08±1.26	2.04±1.05	1.59±1.02	70.5
- vaccine storage	2.91±1.26	1.95±1.08	1.6±1.00	55.8
Determination of vaccination needs	2.05±1.06	-	-	27.8
Vaccine administration - tetanus toxoid	3.66±1.52	-	-	73.7
- others	1.99±0.86	-	-	17.6
Travel health				
Advise on - travel destination risk	2.25±1.33	-	-	36.1
- routine vaccination	2.3±1.33	-	-	45.6
- recommended vaccination	2.0±1.32	-	-	33.1
- prevention of travellers' diarrhea	2.28±1.38	-	-	31.3
- malaria prophylaxis	2.81±1.45	-	-	53.4

Very much involved=5; very involved=4; involved=3; not involved=2; not involved at all=1; % involvement = involved +very involved+ very much involved; b=Scale 1-5; midpoint=3

8 Author's contributions

DUA and ACO were involved in conducting the research work, writing manuscript and draft the manuscript. Both authors read and approved the final manuscript.

9 References

1. Cohen JT, Neumann PJ, Weinstein C. Does Preventive Care Save Money? *New Eng. J. Med.* 2008; 358:2847-2848.
2. Goetzel RZ. Do Prevention or Treatment Services Save Money? – The Wrong Debate. *Health Aff.* 2009; 28; 1: 37-41.
3. Friest JF, Koop CE, Beadle CE, Cooper PP, Englang MJ, Greaves RL, Sokolov JJ. Reducing health care cost by reducing the need and demand for medical services. The health project consortium. *New Eng. J. Med.* 1993; 329(5): 321-5.
4. World Health Organization. Preventing Chronic disease: a vital investment: A WHO Global report, 2005; Geneva.
5. Ubel PA, Spranca MD, Dekay ML, Hershey JC, Asch DA. Public preferences for prevention vs. cure: what if

an ounce of prevention is worth only an ounce of cure. *Medical Decis. Making*, 1998; 18: 141-148.

6. Maggum SA, Kraenow KR, Narducci WA. Identifying at risk patients through community pharmacy-based hypertension and stroke prevention screening projects. *J. Am, Pharm. Assoc. (Wash).* 2003; 43(1):50-55.
7. United Kingdom Department of Health (UKDOH). Choosing health through pharmacy – a program for pharmaceutical public health 2005-2015.
8. Anderson C, Blenkinsopp A, Armstrong M. The contribution of community pharmacy in improving the public's health. Summary Report of the literature review 1990-2007. London Pharmacy Health Link; 2009.
9. Schaffer SJ, Fontanesi J, Rickert D, Grabenstein JD, Rothholz MC, Wang SA, Fishbein D. How effectively can health care settings beyond the traditional medical services provide vaccines to adolescents? *Paediatr.* 2008; 121.
10. Knapp KK, Blalock SJ, Black BL. ASHP - Survey of ambulatory care responsibility of pharmacists in managed integrated health systems. *Am. J. Health Syst. Pharm.* 2001; 58: 2151 – 2166.

11. Watts PR, Dinger MK, Baldwin KA, Sisk RJ, Brockschmidt BA, McCubin JE. Accessibility and perceived value of health services in five Western Illinois rural communities. *J Community Health*. 1999; 24:147-157.
12. World Health Organization. The Role of The Pharmacist in The Health-Care System- Preparing The Future Pharmacist : Curricular Development, Report of Third WHO Consultative Group on The Role of The Pharmacist ,Vancouver, Canada, 27-29 August 1997.
13. Royal Pharmaceutical Society of Great Britain (RPSGB). Community Pharmacy: the choice is yours. Access to and usage of community pharmacies – the customer's view. Royal Pharmaceutical Society of Great Britain: London.1996.
14. Chandra A, Malcolm N, Feters M. Practicing health promotion through pharmacy counselling activities, *Health Promot. Pract.* 2003; 4:64-71.
15. Crawford SY. Pharmacist's role in health promotion and disease prevention. *Am. J. Pharm. Educ.* 2005; 69:4: 534 – 540.
16. Spears T. Community pharmacists play key role in improving medical services. 2010.
17. Dombrowski SR, Ferro LA. Pharmacists counselling on nutrition and physical activity – part 2 of 2: Helping patients make changes. *J. Am. Pharm. Assoc.* 1999; 39:613-627.
18. Awad A, Waheed M. Community pharmacist role in obesity treatment in Kuwait: a cross sectional study, *BMJ Public health* 2012; 12:863-871.
19. Goniewicz ML, Linga OE, Czogala J, Koszowski B, Zielinska-Danch W, Sobczaka. The role of the pharmacist in smoking cessation in Poland. *Eval. Health Prof.* 2010; 33; 1:81-95.
20. Saba M, Diep J, Saini B, Dhipayom T. Meta-analysis of the effectiveness of smoking cessation intervention in community pharmacy. *J. Clin. Pharm. Ther.* 2014; 39:240-247.
21. Ragland D, PayaKachat N, OunPresenths S, Pate A, Harrod SE, Ott RE. Emergency contraception counselling: An opportunity for pharmacists. *JAPha.* 2011; 51(6):756-760.
22. Parsons J, Adams C, Aziz N, Holmes J, Jawad R, Whittlesea C. Evaluation of a community pharmacy delivery of oral contraception services. *J. Fam. Plann. Reprod. Health Care* 2013; 39(2): 97-101.
23. Bagwell A, Skelley JW, Saad L, Wooley T, Dugan D. The role of the clinical pharmacist in modifying cardiovascular risk factors. *Innov. Pharm.*, 2013; 4; (3):129.
24. Chiazor IE, Evans M, vanWoerden H, Oparah AC. A Systematic Review of community pharmacist' interventions in reducing major risk factors for cardiovascular Disease. *Value Health Reg.* 2015; 7: 9 – 21.
25. Santchi V, Chiolero A, Burnand B, Colosimo AL, Paradis G. Impact of pharmacist care in the management of cardiovascular disease risk factors. *Arch. Intern .Med*, 2011; 171(16):1411-1453.
26. Giles JT, Kennedy DT, Dunn EC, Wallace WL, Meadows SL, Cafiero AC. Results of a community pharmacy-based breast cancer risk assessment and education program. *Pharmacotherapy.* 2001; 21: 243-253.
27. Yuksel N, Majumdar SR, Biggs C, Tsuyuki RT. Community pharmacist initiated screening program for osteoporosis: a randomized controlled trial. *Osteoporos. Int.* 2010; (21):391-398.
28. Elias MW, Burden AM, Cadarette SM. The impact of pharmacist intervention on Osteoporosis management: A systematic review. *Osteoporos. Int.* 2011; 22: 2587-2596.
29. Anderson C, Blenkinsopp A, Armstrong M. The contribution of community pharmacy in improving the public's health – Report 1: Evidence from the peer-reviewed literature 1990-2001. London, 2003a.
30. Anderson C, Blenkinsopp A, Armstrong M. The contribution of community pharmacy in improving the public's health – Report 2: Evidence from the UK non-peer-reviewed literature 1990-2002. London, 2003b.
31. Anderson S. Community Pharmacy and Public Health in Great Britain 1936 – 2006. How a Phoenix Rose from the ashes. *J. Epidemiol. Community Health.* 2007; 61:844 – 848.
32. Lai E, Trac L, Lovett A. Expanding the pharmacist's role in public health. *Univers. J. Public Health.* 2013; 1(3): 79-85.
33. Anderson C, Blenkinsopp A, Armstrong M. The contribution of community pharmacy in improving the public's health. Summary Report of the literature review 1990-2007.
34. Al Hassan MI. A Look at Community Pharmacy Practice in Saudi Arabia. *Res. J .Med. Sci.* 2009; 3(3):111-114.
35. Matowe L, Mori MT, Mawa S. Enhancing the role of pharmacists in public health in developing countries. *Pharm. J.* 2012; 228; 623.
36. Igwilo CI, Aderemi-Williams RI. Willingness of caregivers/parents to use community pharmacies for routine immunization in Ikeja, Lagos, Nigeria. *West Afr. J. Pharm.* 2008; 21(1):26-29.

37. Oparah AC, Arigbe-Osula EM. Evaluation of community pharmacist involvement in primary health care. *Trop J Pharm Res.* 2001; 1(2):67-74.
38. Oparah AC, Okojie OO. Health promotion perceptions among community pharmacies in Nigeria. *Int. J. Pharm.Pract.* 2005; 13:1-9.
39. Soyemi OI, Hunponu-Wusu OO. Knowledge, attitudes, and participation of community pharmacists in Lagos state, Nigeria towards primary health care (P H C). *J Public Health Epidemiol.* 2015; 7(1):15-19.
40. Anderegg SV, Gumpfer KF. What meaningful use means to pharmacy. *Am. J. Health Syst. Pharm.* 2012; 69(10): 890-894.
41. Laliberte MC, Perreault SB, Damestoy N, Lalonde A. Ideal and actual involvement of community pharmacists in health promotion and prevention, a cross sectional study in Quebec, Canada. *BMC Public Health.* 2012; 12:192.
42. Agomo CO. The role of community pharmacists in public health-A scoping review of the literature. *J. Pharm. Health Serv. Res.* 2012; 3: 25-33.
43. Heung SM, Chan MY, LeeTze FD. The effectiveness of telephone counselling for reducing cardiovascular risk in community dwelling adults: a systematic review .*JBI Data base of systematic review & Implementation report.* 2012; 10(14).
44. Anderson CA. Controlled study of the effect of a health promotion training scheme on pharmacists' advice about smoking cessation. *J. Soc. Admin Pharmacy .*1995; 9:147-154.