

Social support in the practices of informal providers: The case of patent and proprietary medicine vendors in Nigeria

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Abstract

The social and institutional environments in which informal healthcare providers operate shape their health and business practices, particularly in contexts where regulatory enforcement is weak. In this study, we adopt a social capital perspective to understanding the social networks on which proprietary and patent medicine vendors (PPMVs) in Nigeria rely for support in the operation of their shops. Data are drawn from 70 in-depth interviews with PPMVs in three states, including interviews with local leaders of the PPMV professional association. We find that PPMVs primarily relied on more senior colleagues and formal healthcare professionals for informational support, including information about new medicines and advice on how to treat specific cases of illness. For instrumental support, including finance, start-up assistance, and intervention with regulatory agencies, PPMVs relied on extended family, the PPMVs with whom they apprenticed, and the leaders of their professional association. PPMVs' networks also provided continual reinforcement of what constitutes good PPMV practice through admonishments to follow scope of practice limitations. These informal reminders, as well as monitoring activities conducted by the professional association, served to reinforce PPMVs' concern with avoiding negative customer health outcomes, which were perceived to be detrimental to their business reputations. That PPMVs' networks both encouraged practices to reduce the likelihood of poor health outcomes, and provided advice regarding customers' health conditions, highlights the potential impact of informal providers' access to different forms of social capital on their delivery of health services, as well as their success as microenterprises.

Keywords: Nigeria; medicine vendors; social support; provider reputation; professional associations

Introduction

Due to the limited capacity of health systems in many low- and middle-income countries (LMICs), there has been growing interest in the role of private, informal providers in filling gaps in health services delivery. Informal providers span a variety of retail and practitioner types, including drug shops, private clinics, midwives and traditional birth attendants, and traditional healers practicing in a range of medical traditions (Bloom et al., 2011; Sudhinaraset et al., 2013). Although a variety of definitions exist for what ‘informal’ means in the context of health service provision, most definitions agree that informal providers are those who perform services for which they have not received formal training, and who in some way operate outside of established regulatory boundaries (Bloom et al., 2011; Sudhinaraset et al., 2013). Whether those regulatory boundaries recognize informal providers at all, or whether the providers are operating outside the bounds of their legal regulatory scope, is heavily context- and time-dependent (Cross and MacGregor, 2010). Yet the limited data available suggest that informal providers constitute over half of all healthcare providers in some LMICs (Sudhinaraset et al., 2013). Their practices therefore have broad implications for access to and quality of healthcare in many contexts.

Numerous studies have documented the characteristics, utilization, and quality of service of informal providers (for reviews, see Shah et al., 2011; Sudhinaraset et al., 2013; Wafula et al., 2012). Yet it is informal providers’ location on the “margins of legitimacy” (Cross and MacGregor, 2010, p. 1594) that has sparked the most debate about how to work with this sector of the health system. Standard economic approaches focus on the profit motive of private healthcare providers, arguing that this may lead to excess or inappropriate provision of services (Arrow, 1963; Sloan, 2000). The assumption of self-interested profit maximization has been

widespread in the literature on informal providers, particularly given that many operate in contexts where regulatory enforcement is weak (Bloom et al., 2008; Cross and MacGregor, 2010). Recently, several scholars have challenged this narrow conception of provider motivations, arguing that the tenuous position of informal providers in relation to formal regulatory structures leads to a broader range of influences on their practices. These scholars have pointed out that informal providers are socially embedded actors whose practices are influenced by their relationships with their host communities, position within professional networks, and ties to formal institutions, in addition to economic incentives (Bloom et al., 2008; Cross and MacGregor, 2010; George and Iyer, 2013). Greater contextualization of informal providers within the social and institutional environments in which they function is therefore key to understanding their practices.

However, few studies have explored how informal providers relate to social and institutional structures in specific empirical contexts. Those that have suggest that informal providers rely on a range of professional networks in different aspects of their practices. In India, rural medical practitioners (RMPs) have been found to maintain ties to the providers under which they apprenticed (George and Iyer, 2013), and to rely on referral relationships with other providers as means of continued learning (Ecks and Basu, 2014; George and Iyer, 2013). Village doctors in Bangladesh and RMPs in India obtain information about medicines from drug detailers (Ecks and Basu, 2014; Rahman et al., 2009, cited in Bloom et al. 2011). Several studies have also noted that different types of informal providers self-organize through professional associations (Ecks and Basu, 2014; George and Iyer, 2013; Sudhinaraset et al., 2013). Although studies of these

associations are few, one exception is the association of patent medicine dealers in Nigeria, which we discuss in greater detail below.

The small number of studies on informal providers' network resources is particularly surprising given the broader interest within the development literature in the role of social networks and social capital in entrepreneurial development. We follow Woolcock in defining social capital as the "information, trust and norms of reciprocity inhering in one's social networks" (1998, p. 153). Norms of reciprocity in turn entail the "exchange of social support," (Ferlander, 2007, p. 116) where support is typically categorized as being of four types. Emotional support is the provision of caring or empathy, whereas instrumental support entails the provision of concrete forms of assistance such as finance. Two additional types, related to information, are informational support, the provision of advice or information that helps individuals to manage situations they encounter, and appraisal support, which is the provision of information that specifically helps the recipient to self evaluate their own performance or behavior (House, 1981).

In Sub-Saharan Africa, a social capital framework has been applied to the study of several types of micro-entrepreneurs (Barr, 2000; Fafchamps and Minten, 2002; Lyon, 2000; Zuwarimwe and Kirsten, 2010), pointing to both the effects and the nature of these entrepreneurs' social networks. This literature finds that larger and more diverse networks lead to higher enterprise productivity (Barr, 2000; Fafchamps and Minten, 2002), and that small entrepreneurs rely on their networks both to stabilize their income (Lyon, 2000) and to expand their businesses (Zuwarimwe and Kirsten, 2010). The networks on which micro-entrepreneurs rely to achieve these outcomes in rural Sub-Saharan African contexts are both formal (e.g. associations) and

informal (e.g. friends, family and acquaintances) in nature (Lyon, 2000; Zuwarimwe and Kirsten, 2010; see also Ferlander, 2007). This differentiation of the formality of entrepreneurs' networks is distinct from the common categorization of social capital as bonding, bridging or linking. Bonding social capital exists between network members that are similar in terms of their socio-demographic characteristics, whereas bridging social capital exists between members who are dissimilar from one another but are linked through a horizontal (egalitarian) relationship (Szreter and Woolcock, 2004; Ferlander, 2007). Linking social capital connects people across explicit social or institutional power differentials; for example, a healthcare provider and her patient. The presence of respectful, collaborative (as opposed to extractive or suppressive) linking social capital has been argued to be key for service delivery in a range of fields, including health, to effectively meet the needs of the beneficiary population (Szreter and Woolcock, 2004). The overlap between these forms of social capital and network formality can be useful in understanding how micro-entrepreneurs receive different forms of support, a point we return to in the discussion.

None of these previous studies on micro-entrepreneurs in Sub-Saharan Africa, however, address entrepreneurs in the health sector. In this study, we apply a social capital perspective to understand the professional networks of proprietary and patent medicine vendors (PPMVs) in Nigeria. PPMVs are owner-operated retail drug shops that are ubiquitous throughout Nigeria, with an estimated 200,000 in the country (Barnes et al., 2008). Although legal and regulated by the Ministry of Health (Barnes et al., 2008), PPMVs are not required to have formal training in pharmacy or medicine and typically complete an apprenticeship with a more senior PPMV prior to opening their shop (Beyeler et al., 2015; Brieger et al., 2004). Although only primary

education is required to open a PPMV, recent studies indicate that the majority hold at least a secondary degree and substantial percentages in fact have formal medical training (Beyeler et al., 2015). Nevertheless, there are significant concerns about the quality of service provided by this highly diverse sector (Beyeler et al., 2015), and studies indicate that compliance with scope of practice regulations (Fajola et al., 2011; Ujuju et al., 2014) and licensing requirements is low (Beyeler et al., 2015; Oyeyemi et al., 2014). These concerns about the quality of care provided by PPMVs, and the role of their social networks in influencing their practices, is significant given that PPMVs are a major source of care in the country, particularly among poor and rural communities (Onwujekwe et al., 2011).

Lack of regulatory enforcement does not mean that the PPMV sector is unorganized; PPMVs have a professional association, the Nigerian Association of Proprietary and Patent Medicine Dealers (NAPPMED) that operates at multiple administrative levels, with branches extending from a national body down to the state, Local Government Area, and local (ward) levels (Oladebo et al., 2007). To our knowledge, only one study has examined the functioning of NAPPMED, which was based on interviews with leaders of 12 local association chapters (Oladebo et al., 2007). These leaders reported that NAPPMED provides opportunities for members to improve their knowledge, helps with problems, and defends members' interests, and that NAPPMED fines members for practices deemed inappropriate, such as selling unapproved drugs or failing to attend NAPPMED meetings. The association also has relationships with local government and regulatory officials, whom they deal with to resolve members' problems (Oladebo et al., 2007). How member PPMVs who are not part of the leadership view participation in NAPPMED, and the contexts in which they rely on the association for support,

has not been explored. Other social networks, including informal networks of personal and professional contacts, which PPMVs may rely on in running their shops, have also not been investigated.

Our objective in this study is to understand how and why PPMVs access different forms of social capital that may influence their health and business practices. Specifically, we (1) describe the characteristics of the social networks that PPMVs rely on for support related to both the health and business aspects of their shops, (2) explain the forms of support that PPMVs receive and situate these within common categorizations of social support, and (3) explain why PPMVs rely on certain types of network contacts for different forms of support. In addressing the last objective, we pay particular attention to when and why PPMVs call on NAPPMED as compared to other contacts. In conclusion, we consider the implications of our findings in terms of the importance of social capital to microenterprises that provide health services.

Methods

The data for this study are drawn from in-depth interviews with PPMVs in rural areas of Kogi and Kwara states in North Central Nigeria and Enugu state in the South East. Kogi and Kwara states were selected based on the relative lack of research on PPMVs in the North-Central region, and Enugu was chosen as a comparison and validation site because much of the existing literature on PPMVs comes from the South East region (Beyeler et al., 2015). The qualitative interviews were part of a larger mixed-methods study of the role of PPMVs in providing pediatric care.

Site selection

We adopted a purposive sampling approach that followed the organizational structure of NAPPMED. This strategy was adopted because no sampling frame for PPMVs was available for the study states at the time, and because a sampling strategy based on the organization of NAPPMED allowed for the inclusion of multiple members and leaders of each NAPPMED unit into the study, enabling a broader examination of the strength and nature of linkages between the actors within a unit. Statistical representativeness was not an explicit aim of the study. In each state, we selected one Local Government Area (LGA), within which we selected two to three wards, the smallest administrative unit and the level at which most PPMVs attend regular NAPPMED meetings. In consultation with local NGOs and state-level NAPPMED leaders, we selected wards that were primarily rural, but varied in terms of health services available and distance from urban centers.

In each ward, we met with the head of the local NAPPMED chapter to gather information about the shop locations of members. With the local data collection team, we also gathered information on available health services at the village level and identified PPMV shops that may not have been registered with NAPPMED. Based on this information, we selected four to eight villages in each ward for data collection that varied according to the number of PPMV shops, the presence or absence of a public health center, and distance from the main road. The data collection covered 30 villages: eight each in Kogi and Enugu, and 14 in Kwara. More villages were included in Kwara due to the greater dispersion of the population and the addition of a third ward.

Within each selected village, we attempted to interview all PPMVs in order to capture the extent to which PPMVs in the same geography are embedded in the same networks. Interviews were only conducted with shop owners because apprentices and other shop staff were unable to answer questions about shop operations during pre-testing. We interviewed between one and nine PPMVs per village. Although few PPMVs refused to participate in the study, we were unable to interview some PPMVs because the shop was closed or the owner was not present. As statistical representativeness was not an aim of the study, we did not record refusals or calculate a refusal rate. We conducted a total of 70 interviews (21 in Kogi, 29 in Kwara, and 20 in Enugu), 10 of which were with the leadership of the ward- or LGA-level NAPPMED association, primarily the chairman or vice-chairman.

Data collection

Interviews were conducted in August 2013 by local staff recruited by a local Non-Governmental Organization in each state and trained by the first and third authors. A different field team conducted interviews in each state due to language differences; interviews were conducted in Yoruba in Kwara, Igbo in Enugu, and either Pidgin English or Igala in Kogi. In order to ensure reliability across teams, each interview team was trained using a standard three-day curriculum. Data collection took four to six days in each state, and the entire period was supervised directly by the authors, who monitored procedures and debriefed with field staff daily. Once this feedback indicated that data saturation for the area had likely been reached, fieldwork moved to the next site. Permission was sought from the village chief, and LGA- and ward-level NAPPMED chairmen to conduct the study in their areas. Verbal informed consent was obtained from all respondents prior to the interview. Interviews lasted 60 to 100 minutes; due to the length

of the interviews, they were conducted in the respondent's shop so that s/he could continue to attend to customers. Respondents were given a small gift valued at 500 Naira (~US\$3.13) for their participation.

The interview guide was developed during pretesting in April and June 2013. Interviewers followed a semi-structured guide that included questions about whom PPMVs called on for three main domains of social support: information about medicines; support when encountering a difficult pediatric case; and support when faced with a problem in the shop. These three domains were selected because of their importance for both the health care services that PPMVs provide and the business operations of their shops. Basic information on the first three contacts respondents named in each domain was recorded in tabular format for purposes of comparison. The interviews then included a series of follow-up questions that probed why respondents turned to these specific contacts for help, advice or information, what kind of advice or help they usually received, and the content of the his/her last conversation with the contact. Interviews also covered PPMVs' business operations, scope of practice, participation in NAPPMED, and perception of their role as a PPMV compared to that of formal health providers. The study received ethical approval from the University of California San Francisco and the National Health Research Ethics Committee of Nigeria.

Data analysis

Interviews were digitally recorded in the field. A local team for each language then simultaneously translated the interviews into English and transcribed them. A random selection of interviews in each language group was back-checked for translation and transcription

accuracy before the files were transferred to the authors for analysis. As all of the transcripts were translated into non-standard English, the quotes presented have been edited for comprehension. Village and other proper names have been removed or anonymized to preserve confidentiality.

We conducted the qualitative analysis in Atlas.ti using an open coding approach; codes and sub-codes were derived from the data rather than determined a priori. We adopted an iterative approach to developing the codebook; each author coded several transcripts and developed a list of codes, which we then merged and reconciled, refining code definitions and hierarchies. We repeated this process several times until only minor adjustments to the codebook resulted. The analysis in this paper primarily relies on the code families related to accessing social support in the three main domains of interest. We supplement this with codes related to respondents' personal and professional connections to local health facilities, their experiences starting up their shop, and perceived benefits and requirements of participation in NAPPMED. The coding process indicated that data saturation was reached, as very few modifications to the codebook were made as we coded the later interviews.

Results

Characteristics of PPMVs and their support networks

Of the 70 PPMVs who participated in the study, 68 of whom answered the network questions collected in tabular form, the large majority (n=57) had at least a secondary education (Table 1). Nineteen of the respondents also had some form of formal medical training; most of these were community health workers and a small number were trained as nurses or midwives. Nearly forty

percent (n=26) of the respondents were female. All but one respondent reported being a current member of NAPPMED.

On average, respondents listed a greater number of contacts they would call upon to learn about a new medicine (1.8 contacts) than in the domains of a difficult pediatric case or a problem in the shop (Table 2). The most common type of contact named for obtaining information about new medicines were other PPMVs (38%) and other drug retailers or wholesalers (36%) including pharmacists, followed by medical professionals (23%) including nurses, doctors, and other health workers. No PPMVs listed pharmaceutical representatives or drug detailers as a contact in this or the other domains. Nearly 80% of these contacts lived outside the respondents' community. In contrast, for advice on a difficult pediatric case, 60% of the contacts that respondents named were medical professionals. An additional 32% of contacts were other PPMVs; very few respondents named other types of contact for support in this area. A higher percentage of the contacts named for medical advice (43%) also resided in the same community as the respondent. Overall, however, respondents reported a smaller average number of contacts in this domain (1.3); this was due to the higher percentage of respondents who did not list any specific contacts, most of whom said that they always referred difficult pediatric cases.

The main problems PPMVs reported experiencing in their shops were financial difficulties and encounters with regulatory authorities. When experiencing these problems, respondents primarily relied on other PPMVs (46% of contacts) or informal networks of personal contacts (32%), including family members, landlords, and community leaders. Among the other PPMVs that respondents named, the local NAPPMED chairman featured more prominently than for

other kinds of assistance; 19% of contacts named for a problem in the shop were the chairman, compared to 8% for information on medicines and 6% for a difficult case. As compared to the other two domains, relatively few contacts named for dealing with a problem in the shop were medical professionals (14%). Across these domains, as well as in respondents' discussions of how and why they received this support (presented below), we did not find any consistent differences in respondents' networks by socio-demographics, including gender and ethnicity, or by state.

Forms and sources of support

We now turn to a description and categorization of the types of support that respondents reported receiving in these domains of running their shop. Informational and instrumental support emerged as the most common types, but we also discuss a third form of support, reputational support, which is related to appraisal support but also served a broader purpose of protecting the PPMV profession as a whole.

1. Informational support

Respondents described receiving a wide range of informational support, particularly in the domains of their shop operations that related to health practices. For some operational needs, such as drug supply, respondents primarily relied on their contacts to gain information on products and their uses. However, when dealing with the cases of specific customers, they often described more extended interactions centering on advice and problem-solving.

299 *1a. Keeping updated on the drug market*

300 Respondents described collecting different types of information about new drugs from their
301 contacts, including the uses of new drugs, dosages and administration, explanations of label
302 information, and advice on drug efficacy. Less frequently, respondents described asking their
303 contacts about new medications that they had heard about through the media but did not fully
304 understand. Several also described seeking information about the comparative affordability and
305 efficacy of drugs that were substitutes for one another.

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307 The majority of contacts that respondents relied on to learn about drug information were other
308 drug retailers or wholesalers. In a context where supply chains are informal and highly variable,
309 respondents indicated that the pharmacists, wholesalers, distributors, and even PPMVs with
310 larger shops from whom they procured their stock were important contacts because they had
311 more up-to-date information than PPMVs located in villages. Suppliers located in urban
312 locations had closer ties to main distribution centers and stocked a wider variety of products.
313 Respondents also stated that they asked their pharmacist contacts about new drugs because of
314 their more extensive training and perceived greater knowledge of pharmaceuticals.

315

316 *[He] is a dealer, he goes to Onitsha and to Lagos [large drug markets]. At times,*
317 *companies will come down to his shop with a new medicine and introduce the new*
318 *medicine to him. Anytime that I go there I will seek advice, maybe he will tell me*
319 *that this [drug] is working for this, this [drug] is working for this. – PPMV and*
320 *NAPPMED leader, Achem village, Kogi*

321

322 *He is a pharmacist and he sells drug to us. If we see a new drug that is strange to*
323 *us, he will introduce the drug, [telling us] that this one does this, this is the age at*
324 *which one can take it, if you get to this stage you must not take it. We gain a lot*
325 *[of information] from him. – PPMV, Yahaya village, Kwara*

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327 Respondents' reliance on these drug supply networks likely explains why a large percentage of
328 their contacts for drug information lived outside their own communities.

329

330 Respondents who sought information on drugs from fellow PPMVs typically did so from those
331 who were more senior to them, including their “master,” or the PPMV with whom they
332 apprenticed. They often cited these colleagues' greater experience, as well as respect for elders in
333 this line of work, as the reason.

334

335 *They say the best teacher is the experienced person. Maybe out of experience, he*
336 *knows more than I do about drugs. That is why I go to him as my master. –*
337 PPMV, Ozonze village, Enugu

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339 In some wards, respondents also mentioned relying on local NAPPMED leaders for information
340 on new drugs, either through discussions at NAPPMED's regular monthly meetings or through
341 personal conversations with local leaders.

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345 *1b. Advice on specific cases of child illness*

346 As noted above, respondents were more likely to rely on medical professionals when faced with
347 difficult pediatric cases than in other domains. Respondents' interactions with these contacts also
348 appeared to be more consultative, involving advice, direction, and problem-solving. Respondents
349 who contacted medical professionals for advice did so out of recognition that doctors, nurses,
350 and other health practitioners had studied medicine formally, and were therefore more
351 knowledgeable about treating child illness. The very fact that contacts were doctors or nurses
352 was often given as the reason for contacting them, as explained by a PPMV in Enugu: "*Why I go*
353 *to [Doctor X] is because he studied medicine...he knows what is wrong because he is a doctor.*"

354

355 In the study villages, where PPMVs and a public health center were often the only sources of
356 healthcare available, respondents knew many of these medical professionals as referral points as
357 well as sources of advice. Some PPMVs appeared to have close relationships with the local
358 medical professionals they called on for advice, whether through personal friendships, dual
359 employment in public health facilities (among medically trained PPMVs), or, in a few cases,
360 having apprenticed under a medical professional. As such, these relationships were informal
361 rather than established through the health system.

362

363 *...sometimes when someone brings a child, [the local nurse] might be here, so he*
364 *will tell me to refer the customer to the hospital... Sometimes [the nurse] will say*
365 *that I should give the customer an anti-malarial, and when they use it, it will be*
366 *effective.* – PPMV, Ayorinde village, Kwara, on a nurse at the local health facility

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368 *I will call [Dr. X] and he will send for the person to be brought up to his place.*
369 *Or he will tell me to give the person a certain drug. If I give the drug and [the*
370 *sickness] doesn't subside, I will call [Dr. X] and tell him. He will then tell me to*
371 *bring the person to his place so he will see the person himself. – PPMV, Onyinye*
372 *village, Enugu, on a medical doctor with whom he apprenticed*

373 A few respondents also described situations in which they personally brought their clients to the
374 health facility if the client didn't have their own means of transportation, or intervened with
375 health facility staff to vouch for a client who could not readily pay for services. These more
376 extensive interactions around advice and referral help to explain why a larger percentage of
377 respondents' contacts in the domain of advice for difficult pediatric cases resided in the same
378 community.

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380 For advice in dealing with specific cases, many respondents also called on other PPMVs,
381 oftentimes their master or a more senior PPMV, to obtain drug information. However, the advice
382 that respondents described receiving from other PPMVs commonly revolved around the specific
383 drugs to administer for difficult cases rather than when and to whom to refer. A small number of
384 respondents recounted receiving advice, for example to administer an injection, that was counter
385 to PPMVs' legal scope of practice.

386
387 *If they bring a child to me and I don't know [what to do], I will call my master...*
388 *and he will advise me that "this is how you will do it, this is the type of drug you*
389 *will give him" and if I don't have it he will ask me to refer [the child]. – PPMV,*
390 *Iseyemi village, Kwara*

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When I tell him that this is what is happening with the child I am treating, he will tell me to "give the child this injection," and that when I've given it to the child and he is better, I should add a certain medicine. – PPMV, Usman village, Kogi, on his master

Respondents again explained their reliance on other PPMVs for this type of support in terms of senior PPMVs' greater knowledge and experience, and in some cases as a continuation of their role as an apprentice.

2. Instrumental support

In addition to information, respondents relied on their contacts to provide them with tangible forms of assistance when faced with difficult circumstances. Although this type of assistance often pertained to the business operations of the PPMV shop, at times it extended into the domain of health practices.

2a. Financial and start-up support

A number of respondents, particularly in Kogi and Kwara, mentioned facing cash flow shortages in their shop. In these situations, they relied primarily on family members and sometimes on fellow PPMVs to borrow money, often to restock their shop, which then enabled them to continue earning a living. One respondent described the importance of informal sources of credit for running his shop:

414 *If I do not have money to buy drugs, there is nobody that I can ask except for my*
415 *wife and if she has [money], she will give me. Because when they [customers]*
416 *come here and you say “[the drug] is not available,” it means you are not serious*
417 *with what you are doing.*– PPMV, Kofoworola village, Kwara

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419 Several respondents also mentioned purchasing stock from their suppliers on credit, which they
420 repaid the next time they restocked.

421

422 Most respondents reported receiving money from relatives, particularly parents and siblings,
423 when they opened their shop. Respondents also received financial and logistical assistance from
424 their masters when they transitioned from being an apprentice to owning their own shop. In
425 several cases, this assistance included help with licensing and providing an introduction and
426 reference to the local NAPPMED chapter.

427

428 *[My master] took me to Patent Medicine Dealers in this Local Government Area*
429 *and told them that he taught me and he signed as the master for me. Then he took*
430 *me to the market and bought me goods I will sell, and made a shelf for me, and*
431 *paid for the shop and where I live.* – PPMV, Ekwebelem village, Enugu

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433 However, the degree of financial and non-financial start-up assistance provided by masters
434 varied substantially, which may result from the fact that start-up assistance is often a part of the
435 informal contract established between master and apprentice. At one extreme, a few respondents
436 reported that their master paid for and helped them set up their whole shop, or even left them an

437 existing shop to run while the master went on to establish a new one. At the other, several
438 respondents said that they did not receive any financial or other start-up support from their
439 masters.

440

441 *2b. Intervention with regulatory agencies*

442 Respondents in the study areas felt vulnerable to harassment, detention, or drug seizures by local
443 regulatory or law enforcement authorities, who were perceived to be more motivated by
444 extracting bribes than enforcing regulations, although many respondents also acknowledged that
445 some PPMVs overstepped their legal scope of practice. In nearly all reported encounters with
446 regulatory or law enforcement agencies, respondents turned to their local NAPPMED leaders to
447 intervene.

448

449 *As far as our union is concerned, he [the NAPPMED chairman] is the head. [If] I*
450 *have any embarrassment from anybody, I will call him... if I'm carrying medicine*
451 *and the police or any force sees me and asks me why I'm carrying medicine, I'll*
452 *tell them I'm a Patent Medicine Dealer, that I sell the medicine. If [the police]*
453 *refuses, I will call [the chairman], and he will come. – PPMV, Ekwebelem*
454 *village, Enugu, on the local NAPPMED Chairman*

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456 *It is through the association [NAPPMED] that we can continue to run this*
457 *business without having any problems. And whenever we have a problem - like*
458 *sometimes when we are bringing drugs [for re-stocking] we get arrested by the*
459 *police – then our officials [NAPPMED leaders] go and get the drugs back for us.*

– PPMV, Akpa village, Kogi

A few respondents also described how NAPPMED leaders would try to negotiate the “tax” that external agencies would charge them, warn members that regulatory agencies were conducting sweeps, or try to forestall shop visits by speaking with the agencies beforehand. Respondents’ reliance on NAPPMED to intervene with the authorities corresponded with their overall depiction of the organization as their union. Most respondents viewed NAPPMED registration as obligatory, and NAPPMED ward chapters regulated entry into the local market, approving who could open a shop and where the shop could be located. As one respondent in Kogi stated, “*you cannot operate without a license, and you cannot operate without joining the union.*”

The frequency with which respondents turned to NAPPMED for support, and the types of support they received, varied significantly across chapters depending on the engagement of the executives. For example, in one chapter in Enugu that was highly active according to members’ descriptions, most respondents mentioned the local chairman as someone whom they would call for help with a wide range of issues, including drug information, health advice, and regulatory intervention. In such situations, the professional ties between respondents and their more senior colleagues, including NAPPMED leaders, were overlaid with a personal dynamic of mentorship. Respondents sometimes used familial language to describe their relationships with these senior PPMVs who were “*like a father*” to them. However, there were other wards in which few or none of the respondents reported asking NAPPMED leadership for either instrumental or informational forms of support.

483 3. *Reputational support*

484 A third form of support, which we term reputational support, emerged from respondents'
485 description of their network contacts and combined elements of informational and appraisal
486 support while also serving a broader collective function. Maintaining a good reputation was seen
487 as essential to running a successful PPMV shop, and was often understood by respondents in
488 terms of avoiding bad practices, i.e. a good reputation meant not doing what one was not
489 supposed to do as a PPMV. In one sense, avoiding practices outside PPMVs' legal scope was a
490 form of self-protection against regulatory enforcement. Yet more importantly, avoiding these
491 practices was also a means of guarding against poor customer outcomes, which were detrimental
492 for a PPMV's reputation and therefore for his business.

493
494 *The primary health center does tests, they also set drips [IVs]. There are things*
495 *they do that we can't do... if you [in the PPMV shop] set a drip, give blood or*
496 *stitch a wound, tomorrow they [the community] may say that you are doing what*
497 *they are supposed to do in the hospital. [Then] you are on your own, and you*
498 *know it is a problem for you. – PPMV, Ndah village, Kogi*

499
500 The distinguishing factor between reputational and the other forms of support was that
501 reputational support was not only about individual PPMVs, but also about protecting the
502 reputation of the professional as a whole.

503
504 At the individual level, reputational support consisted of general admonishments about the legal
505 limits of PPMV practice and the potential negative consequences of overstepping those limits.

Respondents described their contacts of all professions, including fellow PPMVs, telling them about what drugs not to stock in their shops, and many also described medical professionals telling them not to touch complicated cases, to always refer, and not to administer certain kinds of treatments (such as injections) that are beyond PPMVs' scope of practice.

....he tells me about all those banned drugs that I should not sell. He also advises me that any medicines that do not have NAFDAC number, I should not buy and sell them because all those NAFDAC and drug laws...can create problems –

PPMV, Ndah village, Kogi, on a pharmacist acquaintance

He tells me that I should be careful. He says that in the work of health, if there is a case you cannot handle, if you've tried something but it didn't work, that you should ask the person to go somewhere else. – PPMV, Ani village, Enugu, on medical professional acquaintance

What distinguished these reminders from informational support was that they did not convey specific knowledge or advice. Instead, they were general cautions intended to prevent negative customer health outcomes that would in turn damage a PPMV's business. As such, respondents understood these good practice reminders as a form of help that their contacts provided them in order for them to do their job well.

The network of good practice reminders among PPMVs' informal contacts was formalized at the level of the profession through NAPPMED's self-monitoring and enforcement mechanisms. As

described by both members and leaders, NAPPMED meetings included frequent discussion of what PPMVs should not do, including selling fake, expired or banned drugs, administering injections, or treating cases that they did not know how to handle. The reinforcement of good practice to avoid negative health outcomes was also part of how some leaders described the association's aims.

My responsibility is to keep my people [members] informed on what to do and what not to do. Under NAPPMED we have limitations, we have the things we can do and the things we cannot do, [so I] advise my members that if any case that they cannot handle comes across them, they should not try to handle it, because life has no duplicate... It can happen that a person comes to you with a problem, and then due to your ignorance you double the problem again [i.e. make the problem worse].— NAPPMED leader, Onojo village, Kogi

Most ward chapters also had a local “task force” that inspected members’ shops for prohibited drugs with varying degrees of frequency; if found, these were confiscated by the task force itself. As portrayed by NAPPMED leaders and members, these mechanisms were intended to reduce “embarrassments” caused by encounters with outside agencies.

The task force moves around making sure that everybody keeps their shop clean [free from banned drugs]. Then, because we by ourselves have made it clean before even NAFDAC or all these other agencies come, if any agency enters any shop, they will see that we are okay. — NAPPMED leader, Mbanusi village,

The purpose of self-monitoring activities, however, was not simply to evade detection by regulatory agencies. Although members noted that dealing with punitive measures from NAPPMED was easier than from external agencies, NAPPMED leaders seemed to view self-regulation as a means of collaborating with formal regulatory agencies. NAPPMED leaders also expressed interest in working with and being considered part of the formal health system.

Discussion

This study describes the extent to which PPMVs are embedded in networks of fellow drug retailers, health professionals, and personal contacts that they rely on for different types of support used to deal with daily encounters in their often tenuous position as informal healthcare providers. The diversity of PPMVs' networks stems from their dual roles as health providers and micro-entrepreneurs, and the results thus speak to the largely separate literatures on the social networks of both groups. On the one hand, our findings on the importance of personal networks as a source of financial support in the absence of access to formal credit mechanisms echo those on other types of microenterprises in Sub-Saharan Africa settings (Lyon, 2000; Zuwarimwe and Kirsten, 2010). In terms of the emerging literature specifically on the networks of informal health providers, we similarly find that continued relationships with training mentors are an important source of support for PPMVs, and thus an important domain for understanding influences on informal providers' practices (George and Iyer, 2013). On the other hand, we find little evidence of network ties between PPMVs and drug detailers or pharmaceutical representatives, who have been found to be sources of information for informal providers in other settings (Ecks and Basu,

2014; Rahman et al., 2009 cited in Bloom et al. 2011). This may be related to the weakness of pharmaceutical supply chains in our rural study sites.

While we find that PPMVs are embedded in networks with each other, as well as with medical professionals, similar to other contexts (Ecks and Basu, 2014; George and Iyer, 2013), our results also suggest that the types of social capital accessed through these ties may be important for understanding their influence on PPMVs' practice. Much of PPMVs' support networks were informal, including the connections to local health providers, and established through individual relationships rather than formalized through the health system. For respondents, these ties constituted a form of linking social capital with formally recognized medical personnel in the health system, through which they could access informational support that helped them to serve their customers. As noted above, the presence of positive linking capital between service providers and their beneficiaries may help to ensure that services actually meet beneficiaries' needs (Szreter and Woolcock, 2004). The dynamics between PPMV respondents and their professional medical contacts further suggests that linking capital between different levels of service providers may be important for responsive service delivery, for example by making medical knowledge more available to low-level providers, or encouraging appropriate referral practices. Linking social capital may be particularly important in contexts, such as the health system in rural Nigeria, where service provision is fragmented and includes a range of actors who are not connected by institutional structures to support quality and continuity of service delivery. In combination with the fact that access to social capital has been shown to improve the performance of other types of microenterprises in Sub-Saharan Africa (Barr, 2000; Fafchamps and Minten, 2002; Zuwarimwe and Kirsten, 2010), this suggests that fostering more formalized

linking social capital between PPMVs and health professionals may be one mechanism for encouraging improved health practices on a broader and more sustainable basis.

Respondents' ties to other PPMVs through personal relationships and institutional membership in NAPPMED were characterized by bonding social capital. In addition, linking capital connected rank-and-file NAPPMED members with their organizational leadership through the association's hierarchical structure, which provided respondents with access to a range of instrumental and informational support. However, the extent to which NAPPMED leaders also established informal, mentoring relationships with their members, such as a father-like relationship that was characterized by bonding capital and the provision of emotional support, influenced the depth of the association's role in providing support to its members. In wards where these overlaying informal, bonding ties were not as strong, members appeared to rely less on NAPPMED to access informational and instrumental support. This finding agrees with the argument that organizations in which informal ties overlay the formal structure may be more effective in achieving organizational goals (Oh et al., 2004), and also suggests that they may be more able to influence the behaviors of their members, whether the influence exerted through these informal ties takes a constructive or a more constraining form.

In addition to the specific instances of support that PPMVs recounted receiving, their networks played a broader role in reinforcing the bounds of PPMV practice through what we term reputational support. The broad reminders of 'good' PPMV practice were to some degree a form of appraisal support in that they provided respondents with a set of guidelines against which they were meant to judge their own practice. At the same time, and particularly when conveyed by

more senior PPMVs, these guidelines were meant to protect the reputation of the PPMV profession as law-abiding providers of health services. Reputational support was thus not only given to individuals, but also formed the basis of a collective appraisal support, and was understood by respondents to be provided based on altruistic sentiments. Reputational support may thus have potential to help curtail poor service delivery practices in an environment where regulatory enforcement is weak and mistrust of regulatory agencies is high. This may be particularly effective if NAPPMED could be leveraged to provide a more consistent level of support to its members, including enforcing scope of practice limitations that can both enhance the reputation of the organization and the PPMV profession while improving the quality and safety of health services provided by PPMVs.

Several limitations should be considered when interpreting our results. First, because we used a non-probability sampling method, care should be taken in generalizing the findings, particularly given the diversity of the PPMV sector throughout Nigeria. We did not interview the contacts that respondents identified, and are unable to describe their motivations for providing this support or verify their perceived support roles. In addition, we did not interview state or national level NAPPMED officials, who may have a broader perspective on PPMVs' positioning within the health system and in relation to regulatory agencies. While respondents' answers, particularly regarding adherence to scope of practice, may have been influenced by social desirability, the fact that many respondents self-reported carrying out illegal practices suggests that many were forthcoming. Finally, we were not able to link respondents' discussions of their networks to the quality of their health practices or business viability. This would be a useful line of further inquiry; for example, a small number of PPMVs reported few or no contacts on whom they

relied for support. This may impact their health or business practices, but because the study was not designed to measure these practices outside of self-reported strategies for accessing support we are unable to assess how. A larger study is needed to both further assess the influence of variation in PPMVs' networks by their sociodemographic characteristics or training, and the relationship between network characteristics and service delivery or business outcomes. Future research should further explore the potential for interventions based on building social capital to improve service delivery among informal healthcare providers.

Conclusion

This is the first study to examine the support networks that PPMVs in Nigeria rely on in running their shops, demonstrating that PPMVs are embedded in complex informal and formal networks with other drug sellers and health professionals, through which they access a variety of forms of support. In addition to providing specific forms of informational and instrumental support, PPMVs' networks continually reinforce socially understood – if not legally or medically sanctioned – definitions of the limits of PPMV practice through what we term reputational support. The role of PPMVs' networks in encouraging practices that reduce the likelihood of negative customer outcomes, as well as in providing assistance with customers' health concerns, highlights the potential effect that linking capital between different levels of healthcare providers may have on the quality of service delivery. Interventions that seek to improve the quality of services provided by PPMVs should leverage these existing networks, including those created through the NAPPMED organization, to reinforce change in health practices.

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Table 1: Demographic and socioeconomic characteristics of the sample

	N	%
Current NAPPMED registration		
Yes	67	98.5
No	1	1.5
Highest education completed		
Primary	6	9.5
Secondary	39	61.9
Tertiary or higher	18	28.6
Formal medical training		
None	45	66.2
Some	19	27.9
Gender		
Female	26	38.2
Male	38	55.9
Age - Mean (Range)	34.8 (19-60)	
Religion		
Christian	47	69.1
Muslim	16	23.5
Tribe		
Igala	9	13.2
Igbo	30	44.1
Yoruba	22	32.4
Other	2	2.9
Total	68	100.0

Table 2: Characteristics of responding PPMVs' support networks

	Learn about new medicine	Advice on a difficult pediatric case	Help with a problem in the shop
Total number of contacts	123	87	105
Mean number of contacts (SD)	1.8 (1.1)	1.3 (1.1)	1.5 (1.1)
Number of contacts (%)			
0	16.2	33.9	22.0
1	22.1	25.0	26.5
2	26.4	20.6	26.5
3	35.3	20.6	25.0
Profession of contact (%)			
Medical Professional	22.8	59.8	14.3
PPMV (all)	38.2	32.2	45.7
<i>PPMV</i>	22.8	13.8	16.2
<i>PPMV Master</i>	7.3	12.6	10.5
<i>NAPPMED Chairman</i>	8.1	5.8	19.1
Other drug retailer/wholesaler	35.8	3.5	7.6
Other	3.2	4.6	32.4
Relationship to contact (%)			
Professional contact	68.3	63.2	57.7
Friend	14.6	17.2	9.6
Relative	14.6	13.8	27.9
Other	2.4	5.8	4.7
Contact lives in community (%)			
Yes	21.3	43.0	46.1
No	78.7	57.0	53.9

Note: Total number of respondents is 68