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We all complain about how little the public knows about what pharmacists do. We were intrigued to find out how pharmacists and pharmacy organizations promoted their roles to the public on social media during World Pharmacists Day.

*Nous nous plaignons tous du peu de connaissances que le public a de ce que font les pharmaciens. Nous étions très intéressés de savoir comment les pharmaciens et les organisations de pharmaciens ont fait la promotion de leur rôle auprès du public sur les médias sociaux durant la Journée mondiale des pharmaciens.*

# A Twitter analysis of World Pharmacists Day 2020 images: Sending the wrong messages

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## ABSTRACT



**Background:** Pharmacists are often depicted as dispensers of medication as opposed to health professionals who provide patient care. Our objective was to identify how pharmacists' roles were portrayed in images on Twitter for World Pharmacists Day (WPD) 2020.

**Methods:** A qualitative content analysis was undertaken to evaluate the images of pharmacists on WPD. Tweets were included that had a photo or image, used 1 of 5 WPD hashtags and were posted between September 24 and 26, 2020. Thematic analysis was performed independently by 2 investigators. Tweets were categorized into 5 groups: 1) drug distribution roles, 2) patient care roles, 3) no described roles, 4) not professional/

unprofessional roles and 5) not relevant. Subgroup analysis was performed for the users who posted the tweets.

**Results:** Of the 970 tweets analyzed, only 11% of the overall tweets portrayed the patient care roles of pharmacists, whereas 51% portrayed drug distribution roles and 29% did not describe any particular roles of pharmacists. These proportions were similar between subgroups of tweeters.

**Discussion:** WPD is intended to promote and advocate for the pharmacy profession. The results of our study show poor messaging of pharmacists' roles and reflect a missed opportunity to showcase the full scope of pharmacy practice.

**Conclusion:** Based on the images tweeted on WPD 2020, the diversity of pharmacists' practice as skilled health care practitioners was lost in a sea of tweets portraying pharmacists' roles in drug distribution. We hope that pharmacists and pharmacy organizations will awaken to this self-induced problem for WPD 2021. *Can Pharm J (Ott)* 2021;154:324-330.

## Introduction

When you ask the public what a pharmacist does, most people will probably say, "Dispenses medication." Although this is not incorrect, the public image of pharmacists is often identified as medication dispensers and shopkeepers rather

than medication experts caring for patients. How much of this can be attributed to the public's ignorance and how much is projected by pharmacists themselves? Recent research suggests that pharmacists have a professional identity crisis, which likely leads to confusion in their

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## KNOWLEDGE INTO PRACTICE



- Pharmacists are skilled health care professionals who undertake diverse patient care roles as medicine experts, yet the public seems to be aware of only their dispensing role.
- World Pharmacists Day (WPD) is an opportunity to showcase the global diversity in modern pharmacy practice, yet WPD 2020 was a missed opportunity, with almost all tweets depicting only pharmacists' roles in drug distribution.
- We hope this study will be a wake-up call for pharmacists and pharmacy organizations to actively advocate and promote the diversity in pharmacists' expertise and modern pharmacy practice.

## MISE EN PRATIQUE DES CONNAISSANCES



- Les pharmaciens sont des professionnels de la santé qui assument divers rôles de soins aux patients en tant qu'experts en médecine. Pourtant, le public ne semble connaître que leur rôle de distributeur de médicaments.
- La Journée mondiale des pharmaciens est l'occasion de présenter la diversité mondiale dans la pratique pharmaceutique moderne, mais la Journée mondiale des pharmaciens pour l'an 2020 a été une occasion ratée, car la plupart des messages sur Tweeter ne décrivaient que le rôle des pharmaciens dans la distribution des médicaments.
- Nous espérons que cette étude sera un appel à la conscience des pharmaciens et des organisations pharmaceutiques afin de défendre et de promouvoir activement la diversité de l'expertise des pharmaciens et de la pratique pharmaceutique moderne.

public perception.<sup>1,2</sup> Gregory and Austin<sup>1</sup> stated, "Without our own clear understanding of who we [pharmacists] are as a profession, our self-identity, is it any wonder that patients, physicians and other health professionals don't really know what to make of us and our claims to be medication experts?" Kellar et al.<sup>3</sup> recommended that the pharmacy profession should have a universal professional identity of pharmacists as health care practitioners that they project to the public, governments and other health care professionals.

It is suggested that pharmacists and pharmacy organizations feed this outdated perception of pharmacy through the

language they use to describe themselves and their roles (e.g., "retail pharmacist," "allied health," "customers," "minor ailments").<sup>4</sup> Additionally, Rosenthal et al.<sup>5</sup> suggested that pharmacy culture and pharmacists' personality traits are a barrier to advancing pharmacy practice changes (e.g., lack of confidence, fear of new responsibilities, need for approval, paralysis in the face of ambiguity, risk aversion). Conversely, Elvey et al.<sup>2</sup> suggested there is a tug-of-war occurring within pharmacists between their desire to be recognized as "the clinical practitioner" or "the social carer" while being unwilling to let go of their traditional and ingrained identity as "the medicine maker" or "the scientist." It is thought that although pharmacists might have several professional identities, physicians often see pharmacists only as "dispensers," and that hurts pharmacists' ability to provide team-based patient care.<sup>6</sup>

To change the perception of pharmacy to align with modern pharmacy practice, there are 2 perspectives to consider—pharmacists' self-perception and the public's perception of pharmacists. Pharmacists' self-perceptions and the public's perceptions are tangibly linked and present an adaptive "chicken and the egg" challenge. However, pharmacists can only control the public's perception in so far as they portray themselves to the world. Although we acknowledge that pharmacy practice looks different around the world, the idea of "modern pharmacy practice" is aspirational. It recognizes the fact that pharmacists can now do more than dispense medications and that it is high time for the images that we use to portray the profession to reflect this.

One opportunity to promote the pharmacy profession on a global scale is through World Pharmacists Day (WPD). WPD was proposed by the International Pharmacy Federation (FIP) and has been celebrated on September 25 every year since 2010. WPD was designed to directly support one of FIP's strategic objectives—"To advance pharmacy practice on a global level,"<sup>7</sup> encouraging "pharmacists to use this day to organize activities that promote and advocate for the role of the pharmacist in improving health in every corner of the world."<sup>8</sup> One of the suggested goals highlighted in FIP's WPD guidance document for their member organizations is to "improve the image of pharmacists."<sup>7</sup> However, was this goal achieved in the 10th annual WPD campaign? To our knowledge, no research has evaluated the WPD images that promote the pharmacy profession. As such, we aimed to identify how pharmacists' roles were portrayed in images on Twitter for WPD 2020. Our research questions were as follows:

- What proportion of the images tweeted on WPD 2020 portrayed and raised awareness of modern pharmacy practice and pharmacists' roles in patient care?
- Which roles of pharmacists were advocated for on WPD by different user and poster subgroups on Twitter?

## Methods

### Study design

Qualitative research methods have increasingly been used to understand and explore pharmacy practice.<sup>9</sup> A qualitative content analysis was designed for this study, as it allows for interpretation and evaluation of possible meanings based on the context of the text.<sup>10</sup> Reporting of this qualitative study followed the recommendations in the relevant sections of the Standards for Reporting Qualitative Research.<sup>11</sup> The trustworthiness of this study was evaluated through the use of robust data collection and analysis processes using NVivo software, which allows for coding to be assigned directly onto the images, and agreement was reached by the 2 independent coders in over 60% of the codes assigned.<sup>10</sup>

### Reflectivity

Regarding the investigators' positions within the study, 2 of the investigators (K.W. and R.T.) are registered pharmacists and pharmacy practice researchers and the third investigator (T.S.) is a pharmacology graduate now entering pharmacy training. One of the investigators (K.W.) is experienced in qualitative research methods and content analysis. The researchers' interest in this work stemmed from their observations of the ongoing COVID-19 pandemic and the roles undertaken by pharmacists, as well as their observations of promotions in the lead-up to WPD 2020. The research team operated under the assumption that people would post images that they believe reflect what pharmacists do and their overall impression of the pharmacy profession.

### Data collection

A content analysis was undertaken to evaluate the images being promoted of pharmacists' roles on WPD 2020 using a deductive approach. Twitter was selected as the image source because of its public accessibility, because of the ease of searching for and capturing the contents of individual hashtags and because it was a social media platform suggested by the FIP for WPD 2020 social media activities.<sup>7</sup> Tweets were included in this study if they included a photo or image and used a WPD hashtag during the period of September 24-26, 2020, to account for the variance in time zones. Five hashtags with a different variation of WPD were independently collected: 1) #worldpharmacistday, 2) #worldpharmacistday2020, 3) #worldpharmacistsday, 4) #worldpharmacistsday2020 and 5) #WPD2020. Although other hashtags were identified, such as #transformingglobalhealth (the 2020 theme for WPD), these hashtags were often used in conjunction with one of the WPD hashtag variations listed above and so were not independently captured. Tweets were excluded if they provided only text and did not include a photo or an image. The decision to exclude text was made on the basis that the message from an image often transcends written language and can be understood

regardless of one's native tongue. In addition, images that contained text not written in the ISO basic Latin alphabet were excluded if their message could not be determined by context, as the ability to translate embedded text written in different alphabets was beyond the scope of this study. Replies were included only if there was a new image attached to the retweet. Tweets were enlarged where required to ensure that the entire image was captured. The tweets were catalogued using numerical order of capture and were stored in respective hashtag folders. Duplicates of tweets were removed before analysis.

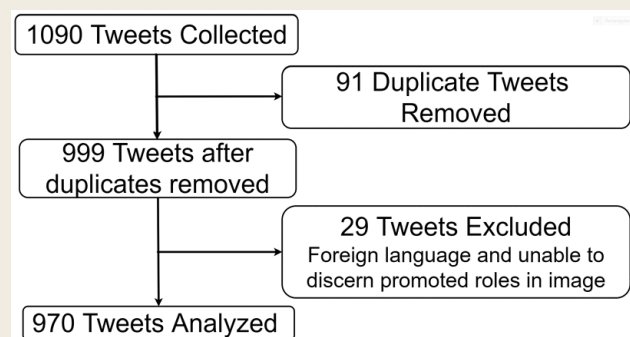
### Data analysis

Content analysis was performed independently by 2 investigators (T.S. and K.W.) and tweets were sorted into 5 categories:

1. *Drug distribution roles*—The overall message being projected is that pharmacists' roles are solely or mostly related to drug dispensing, compounding and/or manufacturing.
2. *Patient care roles*—The overall message being projected is that pharmacists' roles are not limited to drug distribution but include diverse clinical and professional patient care roles (e.g., vaccinations, education, prescribing, disease management, public awareness, research).
3. *No role described*—The image being projected clearly pertains to the pharmacy profession or a pharmacist, but there is no overall message about pharmacists' roles.
4. *Not professional/unprofessional roles*—The image is not clearly identifiable as a pharmacist, does not pertain to the pharmacy profession, or would not be considered as promoting a professional aspect of pharmacy (e.g., selfies, vacation photos).
5. *Not relevant*—The image is not related to the pharmacy profession and pharmacists (e.g., religious, food, GIFs).

Tweets were analyzed according to the overall perception of pharmacists' roles. If an image portrayed both drug distribution and patient care roles, it was categorized based on the overall dominant theme. For example, a tweet would be categorized as patient care if the image highlighted both categories equally or promoted patient care roles more than drug distribution roles.

Data screening and analysis were performed using Microsoft Excel and Computer Assisted Qualitative Data Analysis Software (CAQDAS) NVivo. NVivo software was used as the codes could be assigned directly to the images, ensuring the codes remained linked to the specific images. Where discrepancies occurred in the independent categorization by 2 investigators (T.S. and K.W.), a consensus was reached through discussion. Where required, a third investigator (R.T.) was included in these discussions. After the initial first pass coding, the categories and definitions were revised based on discussions, and then a second round of coding was undertaken. A third round of coding was conducted to confirm the

**FIGURE 1** Study flowchart

categorization and to subcategorize the tweets based on the user or poster, using the following 5 groups: 1) individuals, 2) pharmacy-related organizations, 3) pharmacies and pharmacy departments, 4) other health care organizations and 5) unrelated organizations.

## Results

Initially, 1090 tweets were identified; 91 duplicates and 29 tweets were excluded, resulting in 970 tweets included in the analysis (Figure 1). Overall, only 11% of all tweets raised awareness or promoted pharmacists' patient care roles, whereas 51% focused on drug distribution roles, 29% did not describe any role, 4% were not relevant to WPD and 5% were not professional or portrayed unprofessional roles (Figure 2).

Looking specifically at the tweets by pharmacy-related organizations, almost 50% (107/223) of their tweets portrayed pharmacists in drug distribution roles, whereas only 11% highlighted pharmacists' patient care roles (Figure 2). Only 1% of the images tweeted by pharmacy-related organizations were categorized as unprofessional/not professional images. The proportion of tweets related to patient care roles tweeted by individuals was similar to the proportion from pharmacy-related organizations and the overall group (Figure 2). The other subgroups had near-identical proportion profiles and thus were not included in the figure or discussed.

The largest and most important 2 categories identified in this study were patient care roles and drug distribution roles. Figure 3 provides 4 images that are representative of these 2 categories. Representative images for all of the categories can be found in Appendix 1, available online at [www.cpjournal.ca](http://www.cpjournal.ca), along with the category definitions. Figure 3A illustrates a media opportunity to promote pharmacists' roles on WPD 2020; the pharmacist is standing in front of a counter of medicines. Figure 3B represents a photo from 1910 of a pharmacist in a white coat standing in front of a wall of medicines. Figures 3C and D promote various pharmacists' roles (e.g., prescribing, administering vaccination, chronic disease management, laboratory tests).

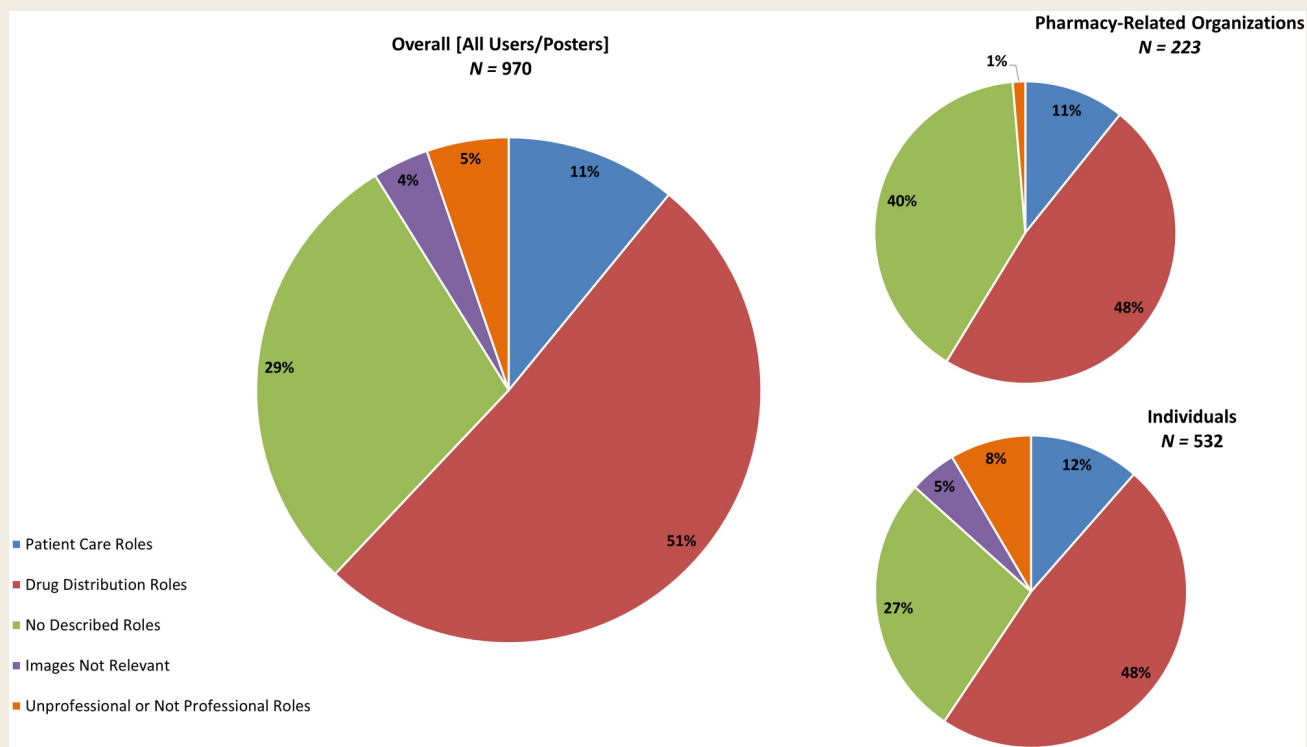
## Discussion

WPD was designed to advocate for pharmacists' diverse practice and their various roles to improve global health. However, our study found that most tweets promoted pharmacists' roles as primarily related to the business of drug distribution, and only 11% of tweets portrayed pharmacists' patient care roles. Stated another way, 9 of 10 tweets on WPD 2020 did not actively advocate or promote roles indicative of modern pharmacy practice.

Historically, images of pharmacists feature a man in a white coat standing in front of a wall of medicines, like the tweeted image included in this study from 1910 (Figure 3B). However, pharmacy practice has evolved in many regions beyond this to include patient care activities such as vaccinations, laboratory testing, prescribing and disease management. Yet, in 2020, images promoting pharmacists' roles do not seem to have evolved to align with this idea of modern pharmacy practice. There were some images tweeted on WPD 2020 that truly represented the scope of modern pharmacy practice and highlighted the many patient care roles undertaken by pharmacists, but these messages were diluted and relatively rare, being represented in only 11% of all tweets. Although pharmacists' roles in drug distribution are vital and are a cornerstone of their professional identity, the consistent and sole emphasis on these roles undermines pharmacists' knowledge and undervalues their skills and contributions to the health care system.

It is no wonder that the public perception of pharmacists is confused; the pharmacy profession is still being viewed through an antiquated lens that is inconsistent with the diversity and extent of pharmacists' current scope of practice. Anything beyond making sure that the right pills go in the right bottles with the right labels disturbs the current public perception that pharmacists' roles are strictly drug distribution-related, which is incongruent with pharmacists' actual roles, knowledge and skills. This poses the question of how we address this tug-of-war between the evolution of modern pharmacy practice into more patient care roles with pharmacists' long-held identity as "legal drug dealers?"<sup>1-3,6,12</sup>

Why is it so difficult to alter the way that pharmacists and pharmacy organizations promote the profession to the world? Do they not believe in the modern scopes of practice for pharmacists? Are pharmacists their own worst enemies? The findings of the current study could indicate how pharmacists perceive themselves or their role in health care. Perhaps, pharmacists are subconsciously or consciously limiting their advancement and pigeonholing themselves into the drug distribution "silo." In 2011, Rosenthal et al.<sup>12</sup> posed a question to a random sample of Canadian community pharmacists: "What does a pharmacist do?" The most common responses, accounting for 45% of the total, were related to drug distribution (e.g., "I count pills").<sup>12</sup> This is remarkably similar to what our study has found and suggests that the way that pharmacists' roles are

**FIGURE 2** Proportions of tweets based on tweet origin: all users, pharmacy organizations and individuals

perceived, even by pharmacists themselves, has changed very little in the past 10 years.

Pharmacists complain about their public image, but they do not always take advantage of opportunities to contribute to the profession's advancement by participating in and advocating for their full scope of practice. This study highlights a major missed opportunity to raise awareness of the diversity of modern pharmacy practice. It may be the case that although pharmacists wish to advance their practice, change their professional identity and take on new patient care roles, they do not want to renounce the traditional professional identity to which they are accustomed.<sup>2</sup>

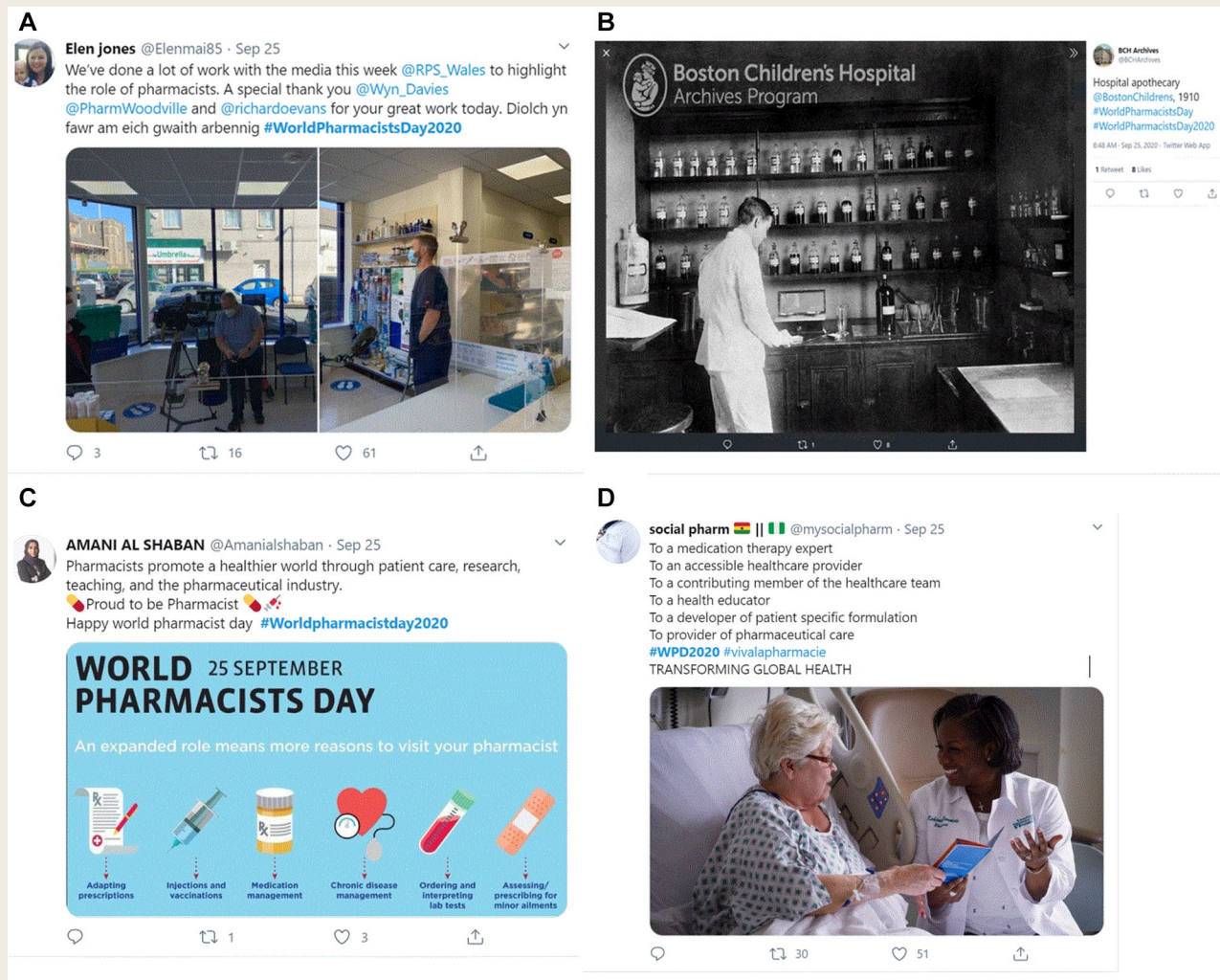
Although part of the blame falls squarely on pharmacists themselves, other factors beyond their direct control may play into the perpetuation of these antiquated ideas. The physical environment in which pharmacists work, and a lack of time, support and resources, may contribute to the reluctance or diminished capacity of pharmacists to integrate patient-centred care into their practice.<sup>13</sup> As a result, pharmacists default to their most accepted roles rather than putting in extra effort to undertake a perceived fruitless endeavour of challenging the status quo.

This convergence of personal, cultural and environmental factors creates a vicious cycle in terms of how the public perceives the role of pharmacists in health care. The public thinks that pharmacists only dispense drugs, which is reinforced by the fact that pharmacists promote their role of dispensing medications and do not put enough emphasis on their other

roles, which in turn cycles back to the public thinking that pharmacists indeed only dispense drugs. Our findings suggest that a way to break the cyclic effect that perpetuates the idea that pharmacists participate only in drug distribution roles is to actively promote other avenues of modern pharmacy practice (e.g., patient care, public health, education, governance). As has been previously established, the drug distribution roles, although important, are already accepted by the public and thus should not be at the forefront of every advertising opportunity for the profession. Almost 90% of the total tweets analyzed in our study did not advocate for pharmacists having patient care roles or solely promoted the well-established drug distribution roles; this represents a wasted opportunity to challenge the commonly held views about pharmacists' roles. WPD is an opportunity to communicate the diversity of pharmacy practice; in failing to do so, we squander this global opportunity to showcase modern pharmacy practice.

Although pharmacies and pharmacy-related organizations should lead by example, half of their tweets for the 2020 WPD focused on drug distribution roles. Perhaps part of the problem lies with these pharmacy governing bodies, organizations and related institutions not providing enough of a push from the top to change the public perception to match the landscape of modern pharmacy practice. But, by the same token, is this ultimately their responsibility? They are representatives for and reflections of the overall pharmacy profession. Perhaps the responsibility should be on pharmacists themselves to initiate change.

FIGURE 3 Representative images posted on Twitter for WPD 2020



Drug distribution roles are highlighted in A and B. Patient care roles are highlighted in C and D.

We propose a coordinated effort between pharmacists and the organizations that represent them to remove the systematic barriers to pharmacists' culture and identity and actively advocate for the diversity of modern pharmacy practice. On the heels of the ongoing COVID-19 pandemic, we strongly advocate for pharmacists and pharmacy organizations to actively highlight the vast array of roles and services being provided by front-line pharmacists.<sup>14</sup> The COVID-19 pandemic has provided an opportunity for the pharmacy profession to relaunch its public image in society as essential, evidence-based and accessible health care professionals.<sup>14</sup> Let us not waste this chance—let's showcase modern pharmacy practice for WPD21. As part of this endeavour to modernize the public view of pharmacy practice, we propose the creation of a public and royalty-free bank of images of pharmacists performing other roles (e.g., patient care, public health). This would allow individuals and organizations free access to images that portray pharmacists in

a way that captures the diversity of modern pharmacy practice, which would be of value to global campaigns like WPD.

#### Limitations

Although this study was able to capture the tweets from pharmacies and pharmacy-related organizations, it could not identify individual pharmacists. There was no definitive way to confirm that an individual Twitter user was a licensed pharmacist based on the information available in his or her profile. Another limitation of this study was the language used in the tweets. In 29 tweets, the image was of documents or large amounts of text written in Arabic, Hindi or other languages not using the ISO basic Latin alphabet; we were not able to translate these images and thus they were excluded from the analysis. However, these comprised only a small number of all tweets (less than 3%) and would not have significantly affected the results. Another limitation was that we evaluated

Twitter only and did not assess other social media platforms; we believed that Twitter would present the most accurate way to capture the data based on hashtags, and it was the suggested social media platform for WPD.

## Conclusion

Pharmacists are skilled health care professionals who undertake diverse patient care roles as medicine experts in addition

to their drug distribution roles. Yet, based on the images tweeted on WPD 2020, the diversity of their practice is lost in a sea of tweets about pharmacists' roles in drug distribution. WPD presents a global opportunity to promote the diversity and scope of the pharmacy profession. However, in 2020, this was a missed opportunity, and we hope this study will be a wake-up call for pharmacists and pharmacy organizations before WPD 2021. ■

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**Author contributions:** T. Santarossa performed project management, data analyses and manuscript writing; K. Watson performed project conception, data collection, analyses, manuscript writing and supervision; R. Tsuyuki performed project conception, analyses, manuscript writing and supervision.

**Conflicts of interest:** None to disclose.

**Financial contributions:** None to disclose.

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