REVIEW ARTICLE

Public Perception of Primary Care Providers with Dual Degrees

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Abbreviations:
MBA: Master of Business Administration
PharmD: Doctor of Pharmacy
MD: Doctor of Medicine
PCP: Primary Care Provider
NPP: Non-Physician Provider
DO: Doctor of Osteopathy

Abstract:

Background
Public trust in the healthcare professions has declined in recent years. The United States ranks among the lowest in terms of public trust in their physicians. Higher levels of trust in one's primary care provider (PCP) have been associated with improved patient outcomes. Most studies involving trust among healthcare practitioners focused mainly on its conception. Little is known on what attributes of PCPs affects trust.

Objectives
The purpose of this study is to describe the impact of dual degreed healthcare providers on patient trust. Secondary objectives includes identification of a) any additional PCP attributes that may affect patient trust. And b) which additional degrees may impact level of patient trust.

Methods
A cross-sectional study evaluating the impact of dual degrees on public trust of their physician or non-physician providers (NPP). Participants were given a questionnaire regarding their perception on their PCP and whether that would change if possessed an additional degree. Survey was comprehensive in nature, focusing on current perception on their PCP's demographics, level of communication, education, and overall qualifications, and which factors would be affected if they had an additional degree.

Results
A total of 279 participants responded to the survey. Roughly 55 percent of respondents indicated their PCP's level of care (n = 154) and communication (n = 152) would be improved if they had an additional degree. 58 percent (n = 163) believed that their level of trust in their PCP would increase if they had an additional degree. These differences were not found to be statistically significant. However, more respondents that saw a physician as their PCP felt an additional degree would make a positive impact on their trust (p-value = 0.019) and perception of care (p-value = 0.020) received by their PCP than those that saw an NPP.

Conclusion
Overall, this study found that an additional degree impacts patient perception on trust in addition to communication and level of care received from their PCP. Also, the years of experience, where their education was received, and continuity of care has an impact on patient trust. Further study involving how to impact patient trust with their PCP may prove to be beneficial and ultimately lead to increased reputation and marketability.

Key words: Primary care provider, physician, dual degree, nurse practitioner, physician assistant

1 Introduction

Trust is to believe in the reliability or strength of another person. In healthcare, trust has significant consequences for a person's wellness. Public trust in the healthcare professions, as a whole, has declined in recent years.[1] Despite the United States (US) maintaining higher rates of patient satisfaction amongst industrialized countries, the US ranks among the lowest in terms of public trust in their physicians.[2] Higher levels of trust in one's primary care provider (PCP) have been associated with improved patient outcomes such as long-term glycemic control, quality of life, and patient satisfaction.[3–5] Another study found a positive correlation between trust and shared decision making.[6] While trust in physicians has been well studied over the last decade, these studies have mainly focused on its conception and degree of trust. Little is known on what attributes of physicians or non-physician providers (NPP) affects this degree of trust.

The popularity of obtaining more than one degree amongst healthcare professionals has increased in the last few decades with the percentage of medical students in dual-degree programs reaching nearly 10 percent in 2017.[7] There is limited evidence that outlines the benefits of obtaining more than one degree in various healthcare disciplines. These studies focus on career advancement and the perception that students have on the dual degree program at their corresponding university.[8–10]

The purpose of this study is to describe the impact of dual degreed healthcare providers on patient trust. Secondary objectives includes identification of a) any additional PCP attributes that may affect patient trust. And b) which additional degrees may impact level of patient trust.

2. Methods

This was a cross-sectional study to evaluate the impact of additional degrees on public trust of physicians and non-physician providers. The survey was open from April 13, 2020 to April 14, 2020. Participants were recruited through Amazon.com's Mechanical Turk (MTurk) online platform.

The MTurk method of data collection is a crowdsourcing marketplace that assists researchers with conducting social science experiments, mainly via surveys. The quality of data obtained through MTurk has been evaluated in prior research and found to be no worse than data obtained through conventional methods.[11,12] MTurk recruitment was achieved through offering $0.75 for the full and honest completion of the survey. There were no limitations noted regarding MTurk's functionality. The only population limitation in recruitment was age (limited to ages 18-89).

All study participants were required to provide informed consent before starting the survey. Study participants were included if they were between 18-90 years of age and residing in the United States (US). Attempts to ensure quality of responses included a) forced question answer to proceed, b) sectioning of the questionnaire, and c) multiple page breaks. Additionally, random number generation occurred for verification only after completion of the last question. As a result, no responses were excluded due to time completion concerns.

Study participants completed a comprehensive anonymously administered survey (Appendix 1). For the purposes of this report, we focused on questions regarding general public perception of their PCP's quality of care and communicational skills. Participants were then asked if their perception of those qualities would change if

their provider had an additional degree. Data did not include any personal identifiers. The questionnaire was administered using a popular online survey tool (Qualtrics, Seattle, WA) for MTurk participants. Institutional Review Board approval was granted by Southern Illinois University Edwardsville, and the protocol was designated exempt from further review.

Nominal and ordinal data are presented as descriptive statistics. Analysis of nominal data was performed using a Pearson chi-square test. A p value of < 0.05 was assigned statistical significance. All analysis was performed using SPSS 24.0 (IBM SPSS, Chicago, IL).

3.0 Results

A convenience sample of 279 participants responded to the survey via MTurk recruitment. No participants were excluded from our analysis. Respondents were overwhelmingly Caucasian (84.4%, n = 233) and male (65.2%, n = 182). Participant baseline demographics are provided in Table 1.

Table 1. Demographic Characteristics

N (%) = 279 (100)	
Age	
18-24	16 (5.7)
25-44	137 (49.1)
35-44	67 (24)
45-54	34 (12.2)
55-64	16 (5.7)
65-74	9 (3.2)
Gender	
Male	182 (65.2)
Female	96 (34.4)
Nonbinary/third gender	1 (0.4)
Ethnicity	
Caucasian	233 (84.4)
African American	20 (7.2)
Asian	8 (2.9)
Other	23 (8.2)
Education	
No college degree	45 (16.1)
College degree	234 (83.9)
Annual household income	
< 20,000	18 (6.5)
20,000-44,999	99 (35.5)
45,000-139,999	144 (51.6)
>140,000	18 (6.5)
Marital status	
Single	82 (29.4)
Married/domestic partnership	187 (67)

Other	10 (3.6)
Healthcare background	110 (39.4)
Chronic medications	
0	105 (37.6)
1-2	126 (45.2)
3-4	38 (13.6)
> 4	10 (3.6)
Health insurance	
Medicare/Medicaid	87 (31.2)
Private insurance by employer	142 (50.9)
Private insurance by marketplace	31 (11.1)

3.1 PCP Results

Overall, 67.5 percent (n = 172) of respondents reported their PCP was a physician, while 32.5 percent (n = 83) reported an NPP (nurse practitioner, physician assistant, etc.) as their PCP. Approximately 40 percent (n = 103) of respondents believed the age of their PCP was between 30-40 years of age, followed by 30.6 percent (n = 78) that believed the age of their PCP between 40-50 years (Table 2). 66.3 percent (n = 169) of participants reported their PCP as males and nearly all reported their PCP communicates in the participant's primary language fluently (Table 2). Over half of respondents reported the length of relationship with their PCP was between 1-5 years (Table 2). A majority of participants appreciated to some degree how their PCP educated them on medications and their health problems (Table 3). Most participants also appreciated to some degree how their PCP communicated with them professionally and socially, and believed they had their best interests in mind (Table 3). Approximately a fourth of all participants felt their PCP was average at providing accurate and up to date recommendations, while 69.4 percent (n = 177) felt their PCP was above average (Table 2). Roughly a third of participants believed their PCP had an additional degree (Table 2). 8.6 percent (n = 24) of the participants reported not seeing a PCP. However, they were not asked any further information regarding their current PCP.

Table 2. Primary Care Provider (PCP) Demographics and Qualifications	
Total N (%) = 255 (100)	
PCP background	
Physician	172 (67.5)
Non-physician Nurse Practitioner Physician Assistant	83 (32.5) 53(19.0) 30 (10.8)
Age	
< 30 years	40 (15.7)
30-40 years	103 (40.4)
40-50 years	78 (30.6)
> 50 years	34 (13.3)
Gender	
Male	169 (66.3)

Female	85 (33.3)
Non-binary/third gender	1 (0.4)
Primary language fluency	247 (96.9)
Length of relationship	
< 1 year	39 (15.3)
1-5 years	157 (61.6)
6-10 years	43 (16.9)
> 10 years	16 (6.3)
Educational background	
Additional degree	107 (38.4)
No additional degree	61 (21.9)
Unsure	98 (35.1)
Qualifications	
Far above average	42 (16.5)
Moderately above average	88 (34.5)
Slightly above average	47 (18.4)
Average	69 (27.1)
Slightly below average	4 (1.6)
Moderately below average	2 (0.8)
Far below average	3 (1.2)

***Data only included info from participants with a PCP**

Table 3. Primary Care Provider (PCP) Data			
Total N (%) = 255 (100)			
	Agree	Neither agree nor disagree	Disagree
	N (percent)	N (percent)	N (percent)
My primary care provider includes me in the decision making process for my care.	228 (89.4)	17 (6.7)	10 (3.9)
I appreciate the way my primary care provider educates me regarding new medications.	222 (87.1)	20 (7.8)	13 (5.1)
I appreciate the way my primary care provider educates me regarding my current medications.	227 (89.0)	21 (8.2)	7 (2.7)
I appreciate the way my primary care provider educates me regarding health problems.	232 (91.0)	12 (4.7)	11 (4.3)
I appreciate the way my primary care provider communicates with me professionally.	234 (91.8)	15 (5.9)	6 (2.4)

I appreciate the way my primary provider communicates with me socially.	230 (90.2)	12 (4.7)	13 (5.1)
My primary care provider has my best interests in mind.	234 (91.8)	12 (4.7)	9 (3.5)
My primary care provider is concerned with the cost of recommended/prescribed treatments.	206 (80.8)	33 (12.9)	16 (6.3)
My primary care provider explains the risks and benefits of each treatment?	221 (86.7)	21 (8.2)	13 (5.1)
My primary care provider lists multiple treatment options for me?	220 (86.3)	20 (7.8)	15 (5.9)

3.2 Dual Degree Perception

A majority of participants agreed to some degree that their PCP's care would be improved if they had an additional degree in public health, social work, psychology, pharmacy, or research. Most respondents felt that degrees in business and law would not improve care (Table 4). Overall, 55.2 percent (n = 154) of respondents indicated that their PCP's care would be improved if they had an additional degree, while 17.6 percent disagreed that level of care would be improved (Table 4). 54.5 percent (n = 152) of participants believed that their PCP's communication would improve if they had an additional degree, and 58.4 percent (n = 163) believed that their overall level of trust in their PCP would increase if they had an additional degree (Table 4). A visual representation of public perception on improved care for specific degrees queried can be seen in Figure 1. These differences were not found to be statistically significant. More respondents that saw a physician as their PCP felt an additional degree would make a positive impact on their trust (p-value = 0.019) and perception of care (p-value = 0.020) received by their PCP than those that saw an NPP.

Figure 1. Dual Degree Perception

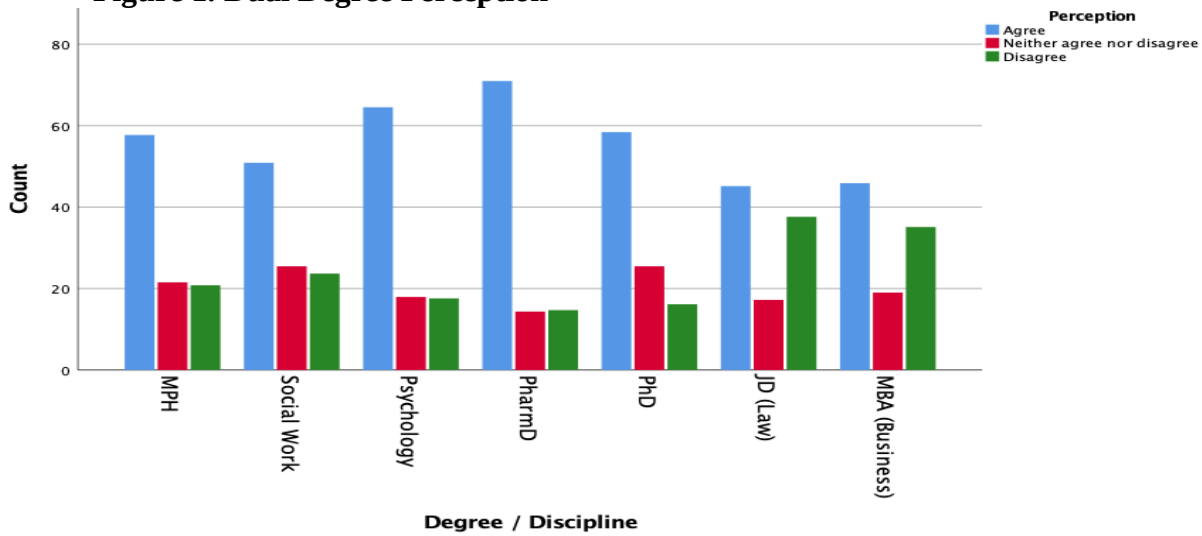

Table. 4 Dual Degree Data			
Total N (percent) = 279 (100)			
	Agree	Neither agree nor disagree	Disagree
	N (percent)	N (percent)	N (percent)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in public health (MPH).	161 (57.7)	60 (21.5)	58 (20.8)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in social work.	142 (50.9)	71 (25.4)	66 (23.7)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in psychology (PsyD or PhD).	180 (64.5)	50 (17.9)	49 (17.6)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in pharmacy (PharmD).	198 (71.0)	40 (14.3)	41 (14.7)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in research (PhD).	163 (58.4)	71 (25.4)	45 (16.1)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in law (JD).	126 (45.2)	48 (17.2)	105 (37.6)
I believe my primary care provider would be able to provide improved care to me if they had an additional degree in business (MBA).	128 (45.9)	53 (19.0)	98 (35.1)
I believe my primary care provider would communicate treatment options more effectively if they had an additional degree.	152 (54.5)	75 (26.9)	52 (18.6)
I believe my primary care provider would provide me with better care if they had an additional degree.	154 (55.2)	76 (27.2)	49 (17.6)
My level of trust in my primary care provider would increase if they had an additional degree.	163 (58.4)	75 (26.9)	41 (14.7)

3.3 Additional Factors

Most respondents felt that age was an additional factor impacting their level of trust with their PCP, with 46.2 percent (n = 129) noting older age and 29.4 percent (n = 82) noting younger age (Table 5). Approximately one third of respondents felt that gender and primary language proficiency impacted their level of trust with their PCP (Table 5).

Table 5. Additional Factors Affecting Trust	
Total N (percent) = 279 (100)	
Age (younger)	82 (29.4)
Age (older)	129 (46.2)
Gender	85 (30.5)
Primary Language Proficiency	86 (30.8)
Race/Ethnicity	49 (17.6)
Religion	37 (13.3)
None	25 (9.0)
Other	12 (4.3)

4 Discussion

The relationship between a patient and their PCP has been evaluated with higher levels of trust having been shown to have a positive impact on patient care. Additional degrees, such as an MBA, have been shown to accelerate advancement for healthcare professionals into administrative positions, which has been associated with increased salary and benefits.[13] However, the benefits on career outcomes of an additional degree in pharmacy, psychology, and social work for healthcare professionals on career outcomes has not been evaluated.

The results obtained in this study shows that the general public believes an additional degree would impact their level of trust and perception of care received from their PCP. More participants with a physician as their PCP felt an additional degree would have an impact on their trust and perception of care and communication received compared to those that saw a non-physician as their PCP. This data suggests that physicians in dual degree programs are more likely to gain trust than nurse practitioners and physician assistants in similar programs. Most respondents felt that an additional degree in public health, social work, psychology, pharmacy, and research would lead to improved care. While most found an additional degree in law and business would not. This suggests that degrees in public health, social work, psychology, pharmacy, and research are the ones that will impact patient perception most. It was found that gender, language proficiency, and age are additional factors that affect patient trust. Multiple respondents felt that continuity of care and where the education and medical training took place also impacted their trust. A majority of participants perceived their PCP's as effective communicators and educators with above average qualifications regardless of their dual degree status. Participants preconceived perceptions of their PCP, either good or bad, may have affected the data.

Overall, this data does not suggest causation of dual degrees to enhanced job opportunity, growth, or compensation. However, the data does suggest that overall public perception of trust increases in PCPs with an additional degree. This could impact potential

performance-based bonuses and reimbursement rates that are tied to patient satisfaction.[14]

There are a multitude of dual degree programs to choose from with the MD/PhD being the most popular with over 120 programs currently accepting applicants for the year of 2021.[15] Interest in MD/MPH programs is the second largest dual degree program currently offered for physicians, with MD/MBA programs following close behind.[15] The MD/JD program has nearly 20 programs currently. The options for DO programs is much more limited as the number of programs are fewer than those for MD at 42 in total.[13] Of those, DO/MPH is the most popular with 18 programs currently accepting applicants for the upcoming year.[16] There are only 11, 7, and 3 programs that offer DO/MBA, DO/PhD, and DO/JD, respectively. There are numerous other dual graduate programs offered by a variety of schools that include a master's degree, typically in a science background, along with the MD or DO. There is currently one program offering a MD/PharmD launched in 2013 at Rutgers University in New Jersey. As of right now there are no programs that offer a DO along with a PharmD. Innovative programs like this will help to further illuminate the benefits that these dual degrees have for PCPs.[9]

A strength that MTurk provided as a recruitment tool was the ability to reach study participants across the country. There is minimal potential for recruitment error as our exclusion criteria consisted of age and residence outside the US, which no participants met. It is possible that participant misunderstanding of survey questions may have led to some unclear responses. To avoid this limitation, the questions could have been constructed in a clearer manner with more examples provided. Other limitations include the questionnaire not being validated for internal or external validity and the lack of capturing regional data in the questionnaire, as this could have provided additional insight. Additionally, differences in gender could be considered a limitation as the ratio of male to female respondents was similar to the ratio of male to female PCPs. Another limitation was the method in which the survey was completed by participants. Using an electronic survey tool may have effectively selected participants of a higher socioeconomic demographic considering access to a cellular phone, tablet, or computer was required, in addition to internet access.

There were 24 participants that reported they did not see a PCP. This was important to note as it represented nearly 10 percent of the total sample size. These participants did not contribute to any questions pertaining to a current PCP, and they only responded to the questions pertaining to their perception on the status of a PCP if they had an additional degree. We do not believe this confounded the results as the data obtained was regarding the perception that the public has on PCPs with additional degrees. Whether this data has any further significance cannot be determined as the questionnaire was not designed to delineate the reasons why they were not seeing a PCP.

5 Conclusion

The relationship and trust one has with their PCP has been shown to affect health outcomes as well as shared decision making. New insight into the ways we can impact this in a positive manner would prove to be beneficial and could ultimately lead to increased reputation and marketability. Overall, this study found that an additional degree does impact patient perception on trust in addition to communication and level of care that they receive from their PCP. It

was also found that the years of experience, where their education was received, and continuity of care had an impact on patient trust. Further study is needed to delineate the size of impact these attributes have on patient trust with their PCP in addition to determining whether those with dual degrees actually obtain any benefits beyond perception, such as compensation and career growth, is warranted.

Disclosures

None of the authors report any direct or indirect financial conflicts of interest.

Funding Sources

None

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