Prevalence and determinants of unconscious stereotyping among primary care physicians

An analytical cross-section study

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ABSTRACT

Objectives: To explore implicit stereotyping among primary healthcare (PHC) physicians and to identify determinants of physicians’ stereotyping of patients based on the patients’ characteristics and appearance.

Methods: This study followed an analytical cross-sectional design conducted between October 2019 and December 2019, and included 250 primary healthcare (PHC) physicians in Aseer Region, Kingdom of Saudi Arabia. Data was collected using a self-administered questionnaire, which included items concerning physicians’ sociodemographic characteristics, and their attitudes toward patient characteristics and patient appearance.

Results: Prevalence of stereotyping among PHC physicians was 63.6% with respect to patient characteristics and 57.6% with respect to patient appearance. Stereotyping based on patient characteristics was higher among younger participants, females, those with bachelor’s degrees, those in general practitioner positions, and those with less experience in PHC.

Conclusion: Most PHC physicians in Aseer Region, Kingdom of Saudi Arabia, are liable to implicit stereotyping based on patient characteristics (namely, gender and educational level) and patient appearance (namely, clothing). Therefore, it is recommended to train PHC physicians in cultural competency to reduce unintentional acts of discrimination toward their patients.

Keywords: prevalence, stereotyped behavior, primary health care, cross sectional analysis, Saudi Arabia, logistic regression

Original Article

There is a growing evidence suggesting that physicians’ attitudes and decision-making contribute significantly to stereotypes that may cause disparities in provided healthcare.1,2 Nevertheless, little is known about why patient stereotyping by physicians influences the process of their clinical decision-making, and thus, there is an insufficient evidence for directing intervention priorities and strategies.3 The reasons for such disparities are associated with several factors:
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The hypothesis of this study was that most physicians in Aseer Region, Kingdom of Saudi Arabia (KSA), unconsciously (namely, implicitly) stereotype based on their patients’ characteristics or appearance while providing PHC service.

Methods. After meticulous search in medical databases (PubMed and Ovid), no other studies exploring stereotyping and its impact among PHC physicians in KSA could be found.

In this study, implicit stereotyping is defined as categorizations used by physicians to make judgments about patients. Social discrimination is differentiating treatment of patients based on their appearance or actual characteristics (example, nationality, age, gender, monthly income, or medical condition). Primary healthcare physicians are those who provide clinical service (preventive and curative) to primary care patients, including dentists (like oral physicians).

This research employed an analytical cross-sectional study design. It was conducted at PHC centers in Aseer Region, KSA, at the southwestern part of KSA. The study was carried out between October 2019 and December 2019. According to data of Aseer Directorate of Health, the study population included all 509 PHC physicians (including dentists) at 240 PHC centers across 19 geographical sectors in Aseer Region, KSA. Using the Raosoft sample size calculator website, the minimum sample size was calculated for the present study to be 220, with 5% error margin, 95% level of confidence, total population of 509, and an expected response distribution of 50%.

Following a cluster sampling technique, 10 out of the total of 19 geographical sectors in Aseer Region, KSA, were randomly selected. All PHC centers within each selected sector were included, and hence, a total of 300 PHC physicians, including dentists, were asked to participate in this study. However, only 250 physicians agreed and filled their questionnaire sheets completely, giving a response rate of 83.3%. The reasons for non-willingness to participate were mainly absence of physicians at the time of visit.

General practitioners, family physicians, dentists, and physicians with other clinical specialties at primary care facilities were included. On the other hand, physicians with administrative positions were excluded. Data was collected using a self-administered questionnaire, which was developed by the researchers and based on review of relevant literature. It included the following parts: i) physician’s sociodemographic characteristics; ii) physician’s attitude toward different personal and sociodemographic characteristics of their patients.

Disclosure. Authors have no conflict of interests, and the work was not supported or funded by any drug company.
patients (9 items); and, iii) physician's attitude toward their patients' appearance (6 items).

The validity of the study questionnaire (namely, face and content validity) was assessed by 2 academic professors of public health and psychiatry at King Khalid College of Medicine, KSA. Participants' attitudes were assessed using statements accompanied by a 5-point Likert scale with the following levels: strongly agree, agree, neutral, disagree, or strongly disagree. An attitude score was assigned for each statement according to the response on the scale: (-2) for strongly disagree, (-1) for disagree, (0) for neutral, (+1) for agree, and (+2) for strongly agree. The total score for each participant was summed. Physicians with scores above 0 were considered stereotyping, while those with total scores of 0 or less were considered non-stereotyping.

A pilot study was carried out on 15 PHC physicians, whose responses were excluded from the main study. One week later, the researchers re-interviewed the same participants, using the study questionnaire. The objective of the pilot study was to test the data collection tool, to estimate the time needed to complete the questionnaire, and to assess its test-retest reliability ($r=0.92$ for physicians' attitudes toward patient characteristics and $r=0.85$ for physicians' attitudes toward patient appearance). Moreover, for the assessment of internal consistency of the study tool, Cronbach's alpha reliability coefficient was calculated, with $\alpha=0.77$ for physicians' attitudes toward patient characteristics and $\alpha=0.81$ for physicians' attitudes toward patient appearance.

All PHC centers within a selected geographic sector were visited by the researchers. All physicians fulfilling the inclusion criteria at the visited PHC center were invited to participate. Physicians were interviewed during their break time. Objectives of the study were briefly and clearly explained to each potential participant. They were assured that no harm was expected to occur if they participated in this study and that their responses would be anonymous and fully confidential. Each participating physician filled out a written informed consent form before receiving the study questionnaire.

This study was carried out according to the ethical principles of the Declaration of Helsinki, and all necessary official and ethical approvals were obtained before data collection. The official Institutional Review Board (IRB) approval was obtained from the Directorate of Health Affairs in Aseer, KSA (REC# 1-9-2019).

During data collection, the investigators were available to answer any questions that participants had about the questionnaire. The investigators then collected all filled questionnaires on the same day of the visit.

**Statistical analysis.** Collected data was analyzed using the Statistical Package for Social Sciences, version 25 (IBM Corp, Armonk, NY, USA). Descriptive statistics were calculated in the form of frequencies and percentages. The Chi-square ($\chi^2$) test was applied to compare between stereotyping and non-stereotyping PHC physicians according to their personal characteristics. Multivariate binary logistic regression (with backward selection method) was applied to identify determinants of stereotyping among PHC physicians. A $p$-value less than 0.05 was considered significant.

**Results.** Table 1 shows that age of 44.4% of PHC physicians in Aseer Region ranged from 30-40 years, 52.8% were males, 68% were Saudi, 67.6% were married, 80.8% were currently non-smokers, and 63.2% had bachelor's degrees. The specialty of 48.4% was general practice, while 60.8% were general practitioners. Most participant physicians had less than 5 years' experience in PHC (40.8%), or 5-10 years' experience in PHC (42.8%). The monthly income of 61.6% was more than 20,000 Saudi Riyals.

Table 2 shows that the patient sociodemographic characteristics most likely to trigger implicit stereotyping among PHC physicians were gender, educational level, and status as a physician. On the other hand, the characteristics of patient appearance that were mostly likely to trigger implicit stereotyping among PHC physicians were clothing and overall hygiene.

Figure 1 shows that 159 PHC physicians (63.6%) showed implicit stereotyping in response to patients' personal characteristics, while 144 (57.6%) showed stereotyping in response to appearance.

Table 3 shows that implicit stereotyping with respect to patient characteristics was significantly higher among younger PHC physicians ($p=0.009$), females ($p=0.018$), those with bachelor's degrees ($p<0.001$), those with general practice as their specialty and those with general practitioner position ($p<0.001$ for both), as well as their years of experience in PHC, with highest prevalence of stereotyping among those with less than 5 years' experience in PHC ($p=0.009$). However, implicit stereotyping with respect to patient characteristics did not differ significantly according to the PHC physicians' nationality, marital status, smoking status, or their monthly income.

Table 4 shows that implicit stereotyping with respect to patient appearance was highest among PHC physicians whose specialty was general practice ($p=0.033$). However, implicit stereotyping with respect...
to appearance did not differ significantly by other PHC physicians' personal characteristics.

Table 5 shows that the binary logistic regression model for implicit stereotyping (using backward selection) with respect to patient characteristics revealed a significant association between PHC physicians' qualifications with higher stereotyping among less-qualified physicians (Exp(B)=0.212, <0.001) and position with higher stereotyping among senior physicians (Exp(B)=0.576, p=0.011). On the other hand, regarding patient appearance, there were significant associations between physicians' specialty with higher stereotyping among PHC physicians of dentistry and other specialties (Exp(B)=0.697, p<0.001) and position with higher stereotyping among general practitioners (Exp(B)=1.580, p=0.007).

Discussion. The present study showed that participating healthcare physicians were almost evenly split in terms of gender, with most physicians being Saudi nationals. About one third had postgraduate degrees, with their specialty mainly being general practice and family medicine, while approximately one fifth were dentists, and the majority of participant physicians had less than 10 years' experience in PHC.

This variability in healthcare physicians' personal characteristics can provide a wide range of choices to satisfy patients attending PHC centers. Mandil et al.,15 noted that most female patients in KSA with obstetric, gynecologic, or other medical complaints preferred to be examined by healthcare physicians of the same gender, with avoidance of embarrassment the main reason for their choice. However, the physicians' characteristic that was most in demand among patients was greater experience as measured by years in medical practice. Walston et al.,16 noted that the healthcare workforce in KSA has the honor of being described as

Figure 1 - Prevalence of PHC physicians' implicit stereotyping toward patients' personal characteristics and appearance.
Patients’ characters

| Socio-demographic characteristics                      | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---------------------------------------------------------|-------------------|----------|---------|-------|----------------|
| Patient’s gender makes difference in management         | 7 (2.8)           | 12 (4.8) | 31 (12.4) | 116 (46.4) | 84 (33.6)       |
| Highly educated patients are difficult                   | 0 (0.0)           | 11 (4.4) | 36 (14.4) | 148 (59.2) | 55 (22.0)       |
| Physicians are more difficult                            | 0 (0.0)           | 17 (6.8) | 30 (12.0) | 180 (72.0) | 23 (9.2)        |
| Low educated patients are difficult                      | 0 (0.0)           | 20 (8.0) | 41 (16.4) | 180 (72.0) | 9 (3.6)         |
| Nationality of patient affects consultation              | 8 (3.2)           | 99 (39.6) | 65 (26.0) | 72 (28.8) | 6 (2.4)         |
| Smokers are less adherent to medication                  | 6 (2.4)           | 121 (48.4) | 71 (28.4) | 52 (20.8) | 0 (0.0)         |
| Certain patients are less likely to adhere to their appointments | 2 (0.8)           | 34 (13.6) | 33 (13.2) | 167 (66.8) | 14 (5.6)        |
| Tribe of the patient is suggestive of patient’s attitude toward his/her disease | 6 (2.4)           | 72 (28.8) | 68 (27.2) | 102 (40.8) | 2 (0.8)         |
| Low socioeconomic class patients do not comply to treatment plan | 2 (0.8)           | 208 (83.2) | 4 (1.6) | 28 (11.2) | 8 (3.2)         |

| Patient’s appearance                                    | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---------------------------------------------------------|-------------------|----------|---------|-------|----------------|
| Patient’s clothing appearance affects my communication with him/her | 4 (1.6)           | 17 (6.8) | 26 (10.4) | 107 (42.8) | 96 (38.4)       |
| Patient’s name is a factor influencing his her compliance | 7 (2.8)           | 145 (58.0) | 29 (11.6) | 52 (20.8) | 17 (6.8)        |
| Patient’s overall hygiene appearance affects my communication with him/her | 2 (0.8)           | 9 (3.6) | 41 (16.4) | 165 (66.0) | 33 (13.2)       |
| Patient’s accent is suggestive of poor compliance       | 1 (0.4)           | 28 (11.2) | 89 (35.6) | 128 (51.2) | 4 (1.6)         |
| I feel discomfort dealing with overweight/obese patients | 6 (2.4)           | 66 (26.4) | 135 (54.0) | 40 (16.0) | 3 (1.2)         |
| Skin color indicates patient’s compliance with instructions | 25 (10.0)       | 197 (78.8) | 10 (4.0) | 18 (7.2) | 0 (0.0)         |

Values are presented as numbers and percentages (%).
However, after controlling for confounders, binary logistic regression analysis revealed that both PHC physicians’ specialty and position were significantly associated with stereotyping based on patient appearance.

Several researchers have discussed the impact of physicians’ gender on their judgment. Hall et al.\textsuperscript{21} considered it as a significant factor in clinical relationships, as female physicians were found to like their patients more than their male colleagues do. At the same time, patients felt that female physicians liked them better. Moreover, patients preferred female physicians over male physicians. However, Crandall et al.\textsuperscript{22} and Weitzman et al.\textsuperscript{23} did not have the same findings. Hojat et al.\textsuperscript{24} noted that, regarding empathy, women scored better than men, but there is no evidence that this difference has an impact in medical practice. Nevertheless, studies, including ours, continue to provide clues for significant gender differences in emotionally charged moral appraisals.\textsuperscript{25}

Therefore, it is suggested that training of PHC physicians in cultural competency can play a significant role in reducing the implicit discrimination that
prevents certain groups of patients from getting the necessary care they demand.\textsuperscript{26,27}

\textbf{Study limitations.} The self-reporting nature of the study tool in the present study may have led to over- or underestimation of participants’ degree of bias. Moreover, the cross-sectional nature of our study does not permit considering the causality of the relationship between compared variables. In addition, this study population included physicians at the PHC level only, and results may not generalize to secondary or tertiary care physicians or physicians at private hospitals. However, a point of strength for the current study is the lack of previous studies in KSA that explored stereotyping and its impact among PHC physicians. Moreover, findings of the present study can help regarding future research related to linking the mental processes detailed in the multi-stage model of stereotyping to health discrepancies.

In conclusion, most PHC physicians in Aseer Region, KSA, are liable to implicit stereotyping. The most common sociodemographic characteristics that trigger implicit stereotyping are patients’ gender, educational level, and status as a physician. On the other hand, among characteristics of patient appearance that may trigger implicit stereotyping among PHC physicians, the most common characteristics were the appearance of their clothing and overall hygiene. Stereotyping among PHC physicians was higher among those who were young, female, and those who had bachelor’s degrees, or had general practice as their specialty, or who were general practitioners.

Therefore, it is advisable to train PHC physicians on cultural competency to reduce unintentional acts of discrimination toward their patients. Moreover, results suggest the importance of teaching undergraduate medical students about stereotype threat and how to avoid it in order to prepare them for their medical careers. In addition, further studies are needed to explore stereotyping in different regions of KSA, among secondary and tertiary care physicians, and at private hospitals.

\textbf{Acknowledgment.} The authors gratefully acknowledge Editage (www.editage.com) for the provided professional English Language editing.

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\begin{table}[h]
\centering
\caption{Binary logistic regression model for implicit stereotyping among PHC physicians with respect to patient characteristics and appearance.}
\begin{tabular}{lllllll}
\hline
\textbf{Variables} & \textbf{B} & \textbf{S.E.} & \textbf{Wald} & \textbf{Exp (B)} & \textbf{P-value} & \textbf{95\% CI} \\
\hline
\textbf{Characteristics} & & & & & & \\
Qualification & -1.552 & 0.263 & 34.937 & 0.212 & <0.001 & 0.127 0.354 \\
Position & -0.552 & 0.217 & 6.457 & 0.576 & 0.011 & 0.376 0.881 \\
Constant & 2.626 & 0.607 & 18.734 & 13.818 & <0.001 & -- -- \\
\textbf{Appearance} & & & & & & \\
Specialty & -0.361 & 0.099 & 13.444 & 0.697 & <0.001 & 0.574 0.845 \\
Position & 0.458 & 0.171 & 7.168 & 1.580 & 0.007 & 1.130 2.210 \\
Constant & 0.456 & 0.308 & 2.198 & 1.578 & 0.138 & -- -- \\
\hline
\end{tabular}
\end{table}

PHC: primary health care, B: slope, S.E.: standard Error, Exp (B): exponential B, CI: confidence interval
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