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Communication Study

The effect of physician–patient collaboration on patient adherence in non-psychiatric medicine

Alexis Arbuthnott *, Donald Sharpe

University of Regina, Regina, Canada

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ABSTRACT

Objective: Factors contributing to treatment adherence are poorly understood but the physician–patient interaction is one factor that is known to affect patient adherence.
Methods: This meta-analysis systematically reviewed the published literature to determine the magnitude of the relationships between physician–patient collaboration and patient adherence.
Results: A statistically significant weighted mean effect size of $M_d = 0.145$ from 48 published studies indicated better physician–patient collaboration is associated with better patient adherence. The relationship between collaboration and adherence was sustained for pediatric and adult populations, chronic and acute conditions, and primary physician and specialists.
Conclusion: These results emphasize the need for physician–patient collaboration within the medical consultation.
Practice implications: The inclusion of the patient's perspective during the consultation is essential to obtaining cooperation once the patient has left the physician's office.

1. Introduction

Two patients each visit their physicians with identical complaints and receive identical prescriptions. Only one of the two patients takes the medication as prescribed. What factors explain why one patient adheres to his physician's advice while the other does not? The degree of physician–patient collaboration during the consultation may be one factor. However, the literature examining the relationship between physician–patient collaboration and patient adherence is scattered across many physician–patient interaction variables and adherence measures. We sought to systematically review the extent of collaboration in the physician–patient interaction within the context of adherence.

1.1. Adherence

Adherence is "the extent to which a person's behavior coincides (in terms of taking medications, following diets, or executing lifestyle changes) with medical or health advice" (p. 1–2) [1]. Some researchers consider adherence to be dichotomous where *adherers* are those patients who take all of their medication and *non-adherers* are those who miss even a single dose [2]. Other researchers consider the patient to be *adherent* when they take some percentage (e.g., 80%) of their medication [3]. Similarly, the level of adherence required varies across illnesses and regimens [4]. For children prescribed prophylactic penicillin, for example, 30% of the prescribed penicillin needs to be taken to assure protection from fever [5]. In contrast, hypertensive patients must take 80% of the prescribed medication to substantially lower blood pressure [4].

Non-adherence is costly for the patient, the economy, and society [6]. First, the non-adherent patient is likely to experience increased morbidity and mortality. The extent to which patients adhere to assigned treatment regimens is associated strongly with positive medical outcomes [7,8]. Second, the economy suffers from non-adherence through lost productivity and wasted health care system resources [6]. Third, non-adherence is a detriment to society. Compliance bias or the failure of participants to take prescribed medication in clinical trials may result in a false negative outcome and the discontinuation of truly beneficial drugs [9]. Premature discontinuation of some medications (e.g., antibiotics, antiretroviral medications) can result in medication resistant diseases spreading among the population [10,11].

By the 1980s, medical and psychological researchers had linked adherence to over 250 factors [12], both controllable (e.g., type of pill dispenser) and uncontrollable (e.g., the weather). Despite this vast body of research, the failure to adhere has been described as "the best documented but least understood health-related behavior" (p. 11) [13]. Researchers have had little success in identifying characteristics that predict adherence with the

* Corresponding author at: University of Regina, 3737 Wascana Parkway, Regina SK S4S 0A2, Canada.
E-mail address: johnalex@uregina.ca (A. Arbuthnott).

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exception of four factors: the patient's psychological state, the patient's financial and social conditions, complexity of the treatment regimen, and characteristics of the physician–patient interaction [13–15]. Of particular interest is the collaboration between physician and patient.

1.2. Collaboration

Physician and patient participation during consultations lies on a continuum. On one extreme, the physician retains unilateral authority during consultations [16]. At the other extreme, the autonomous patient seeks the physician's services but maintains full power over his health care [17]. Between the two extremes lies a collaborative interaction in which both physician and patient are active participants in consultation and health care delivery [17,18].

Physician–patient collaboration has been explored widely in the medical literature under varying pseudonyms including patient participation, communication, education, and satisfaction [19,20]. The term *collaboration* is preferred as it reflects the inclusion of physician-participation alongside patient-participation during the consultation. *Collaboration* has been defined as "any behavior, initiated by the doctor or the patient, surrounding the doctor visit, which facilitates the inclusion of the patient's perspective or the patient's preferences into the medical plan" (p. 1154) [19]. Collaborative behaviors may include any combination of the following: attention to atmosphere and affective bonds; exchange and integration of information; communication of physician recommendations and patient preferences; assessment of understanding and education; negotiation during the decision making process; and follow-up discussion on the consensual decision. Collaborative behaviors may also be reflected through patients' ratings of satisfaction with their level of involvement during the physician–patient interaction.

The primary goal of collaboration is to reduce asymmetry in information exchange and power distribution between physician and patient; this is accomplished though mutual decision-making [21]. Decisions are made through the consensus of two experts: the physician as the medical expert and the patient as the expert in his own life [22]. In order to ensure accurate diagnosis and treatment, the physician and patient are dependent on the information that the other provides [23,24].

1.3. Collaboration and adherence

Understanding adherence behavior requires examining the patient's motives for following or not following a prescribed treatment regimen. Considerable research has shown that "patients do not fail to comply—they choose to take another action" (p. 450) [25]. Patients make rational decisions to comply with treatment recommendations or to take another action based on the information available to them and in accordance with their own beliefs [6,25]. The Health Belief Model is used to predict patient behavior based on the patient's perceptions of susceptibility to a condition, the severity of the condition, and the barriers and benefits of implementing behaviors to prevent the condition [26]. In accordance with The Health Belief Model, the patient's beliefs in his susceptibility to the illness, the severity or consequences of the illness, and the benefits and costs of acting against the illness are especially predictive of adherence [13]. Because physicians can use their medical expertise to influence patients' beliefs [27], physicians are called upon to educate patients about the disease and treatment [28,29].

Adherence is an extension of the physician–patient transaction [30]; however, *adherence* exaggerates the physician's control over the patient [2]. The reality is a physician can only guarantee adherence when directly administering each medication dose [2,9]. The patient holds *veto power* over whether or not he or she adheres to a prescribed treatment and it is the patient who must live with the consequences both positive and negative [2,17]. The process of collaboration assists the physician to understand the patient's subjective experiences and beliefs, thus ensuring the patient is capable of and willing to adhere to the prescribed treatment regimen [22].

Several systematic reviews have been published assessing aspects of physician–patient collaboration (e.g. [31–34]). Unfortunately, these reviews typically focus on a single aspect of collaboration and many of the primary studies within these reviews fail to assess adherence as an outcome variable. Similarly, reviews of adherence have failed to examine characteristics of collaboration [35,36]. Furthermore, these reviews are frequently qualitative and fail to assess the magnitude of the relationship between collaboration and adherence (e.g., [32]). To the best of our knowledge, the direct effect of general physician–patient collaboration on adherence has yet to be determined through a single quantitative review.

1.4. Hypotheses

The purpose of this study was to review and organize the published empirical research relating collaboration to adherence. A meta-analysis was used to determine: (1) the magnitude of the relationship between collaboration and adherence; (2) whether or not population (i.e., pediatric versus adult, chronic versus acute) moderates the relationship between collaboration and adherence, and (3) the role of other moderating variables, such as who measures collaboration (i.e., patient, physician, or researcher) or whether the study was observational or interventional.

The primary hypothesis was that there is a positive relationship between collaboration and adherence. This relationship size was anticipated to be sufficient (indicated by a statistically significant relationship) to justify increasing collaborative efforts during physician–patient consultations.

A second hypothesis proposed that collaboration has a larger effect on adult populations than pediatric populations and on chronic conditions than acute conditions. Pediatric populations have lower adherence rates than adult populations [35,37]. This difference may be explained through the distribution of health-related responsibilities between an extra participant – the caregiver – in the pediatric populations [38]. Patterns of adherence also differ between chronic and acute conditions, with adherence rates to acute therapy being higher than to chronic therapy [39].

A third hypothesis was that collaboration has a stronger relationship to adherence when collaboration is measured by the patient rather than by the physician or the researcher, and that there would be differences in effect sizes between intervention and observational studies. Typically physicians overestimate the amount of information-exchange that occurs during consultations [40]. Similarly, patient estimates of communication are better predictors of patient satisfaction than estimates by researchers [41]. While intervention studies allow the researcher more control over extraneous variables, observational studies have greater ecological validity for assessing the physician–patient interaction. It was uncertain whether a stronger relationship between collaboration and adherence would be observed in the intervention versus the observational group of studies, thus a non-directional hypothesis was made.

2. Method

2.1. Search strategy

The primary search for studies consisted of screening computerized databases (*Cochrane*, *Medline*, and *PsycInfo*) for potentially