

Do side-effects/injuries from yoga practice result in discontinued use? Results of a national survey

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ABSTRACT

Context: Yoga-related injuries are of increasing concern as the use of yoga continues to rise.

Aims: The aim of the following study is to examine whether a national sample of yoga practitioners would report discontinued use of yoga due to injury from the practice, assess what injuries resulted in discontinued use, determine what injuries were most common and identify injuries requiring medical attention.

Methods: Secondary data analysis of a nationally representative sample of adults in the United States ($n = 23,393$).

Results: Less than 1% of individuals who had ever practiced yoga ($n = 2230$) reported an injury from yoga that led to discontinued use. Of those reporting injury, less than one-third ($n = 4$) reported seeking medical attention. The most common side-effect was back pain. Approximately, half of those reporting back pain sought medical attention.

Conclusions: Injury due to yoga is an infrequent barrier to continued practice and severe injury due to yoga is rare.

Key words: Complementary and alternative medicine; injury; side-effects; yoga

INTRODUCTION

Yoga is currently one of the most commonly used complementary and alternative therapies in the United States.^[1] One reason for its popularity may be the positive influence yoga exhibits on multiple indicators of health, including many common chronic diseases.^[2] More specifically, yoga has been highlighted as an effective intervention strategy for health conditions as varied as pain syndromes, cardiovascular conditions, autoimmune and immune conditions, pregnancy-related health issues, musculoskeletal function, weight issues and psychological health.^[3] Along with the proliferation of yoga-based interventions has been an upsurge of lay press publications highlighting perceived common yoga injuries and ways to avoid these injuries.^[4-6] The recent publicity generated about the extreme risks of yoga with the publication of *The Science of Yoga*^[7] highlights the need for scholarly investigations to shed light on the risk associated with yoga.

Until date, the vast majority of peer-reviewed literature examining the side-effects attributed to yoga (mainly injury) are medical case studies. For example, Dacci *et al.*^[8] in their study discuss a 67-year-old woman who presented with a bilateral traumatic lesion of the sciatic nerve after practicing yoga. Johnson *et al.*^[9] describe a 29-year-old healthy woman who presented with a spontaneous pneumothorax (collapsed lung) after practicing Kapalabhati Pranayama. Ferreira and Galvez-Jimenez^[10] report a daily practice of headstand leading to compressive myelopathy with myelomalacia (spinal cord injury) in a 52-year-old woman.

In addition to the aforementioned case studies, there are only a handful of more representative investigations that elucidate the frequency, quantity and most common injuries resulting from yoga practice. The most common yoga-related injuries, as identified by yoga teachers world-wide, include injuries to the lower back, shoulder or rotator cuff, wrist or hand and knee.^[11] A national survey of yoga practitioners of various styles in Australia asserted that 21% of respondents reported experiencing an injury that may have been attributable to their yoga practice, such as minor strains and recurrences of pre-existing injuries.^[12] In an exclusive survey of Ashtanga Vinyasa practitioners, 62% reported having had at least one injury lasting longer than 1 month (e.g., hamstring, knee and low-back) with some practitioners reporting more than one injury.^[13]

Access this article online

Website:
www.ijoy.org.in

DOI:
10.4103/0973-6131.133900

Quick Response Code



Until date, only two studies have been conducted in which yoga practitioners are asked specifically about injury due to yoga practice.^[12,13] Due to recruitment methods employed, these studies lack generalizability. Moreover, previous investigations have failed to determine whether reported yoga-related injuries required medical attention. Thus, it is difficult to reconcile the medical case-report literature with cross-sectional investigations. To account for these limitations, the current investigation determined whether a national sample of yoga practitioners would report discontinued use of yoga due to injury resulting from the practice. We also determined what injuries resulting in discontinued use were most common and whether these injuries required medical attention.

METHODS

Data source and sample

We examined data from the 2007 National Health Interview Survey (NHIS). Conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics, NHIS provides health information on the civilian, non-institutionalized household population of the United States. The multistage stratified sampling design of the NHIS randomly selects households and administers a structured face-to-face survey to household residents 18 years of age or older. All adult (18+) members of the household present at the time of the interview are invited to participate in the sample adult questionnaire, which inquires about health status and conditions, health behaviors and access to health care and utilization.

In addition to the sample adult questionnaire, the 2007 NHIS included a complementary and alternative medicine (CAM) supplement that was administered to one randomly selected adult aged 18 years or over in each household sampled. The supplement covered use, reasons for use and disclosure of use to conventional medical professionals of 36 types of CAM therapies, including yoga. The overall response rate for the 2007 NHIS sample was 67.8%. The results reported herein include participants who responded to both the sample adult questionnaire and CAM supplement ($n = 23,393$).

Measures

Yoga practitioners were identified by the single item, "have you ever practiced yoga?" Responses were dichotomously classified as "yes" or "no." Reasons for not practicing yoga in past 12 months were indexed through a single item, "Please tell me the reasons why you have not practiced yoga in the past 12 months." Respondents were provided a list of reasons and were instructed to choose all that applied: Never thought about it; no reason; it didn't work for me before; it costs too much; I had side-effects last time;

a health care provider told me not to use it; medical science has not shown that it works; and some other reason. We examined only those who identified the experience of side-effects as the reason for not practicing yoga within the past 12 months ($n = 16$).

If respondents identified experience of side-effects as the reason for discontinuing the practice of yoga, interviewers asked respondents to identify the side-effect with a single open-ended question, "What kinds of side-effects did you have?" Verbatim responses were recorded. For those individuals who reported experiencing a side-effect, the need for medical attention to treat the side-effect was indexed through a single item, "did any of these require medical attention?" Responses were dichotomously classified as "yes" or "no."

Data analysis

The IBM Statistical Package for the Social Science, version 21, was used to determine the frequency of yoga practitioners who reported (a) discontinued use of yoga in the last 12 months due to side-effects, as well as (b) the nature of the reported side-effects and (c) if the side-effects required medical attention.

RESULTS

Less than 1% ($n = 13$) of individuals who had ever practiced yoga in their lifetime ($n = 2230$) reported experiencing a side-effect from their last practice that led to discontinued use of yoga. Nine individuals identified side-effects associated with musculoskeletal pain: Six reported back pain; two did not specify the type of pain; and one reported joint pain. Two individuals reported a specific injury (i.e., hip injury and strained foot). Digestive problems were reported by two other individuals. Less than 1/3 (31%; $n = 4$) reported seeking medical attention as a result of the side-effect. All cases requiring medical attention were individuals presenting with either back or joint pain. Table 1 summarizes the demographic characteristics of yoga practitioners who discontinued practice as a result of a side-effect.

DISCUSSION

Less than 1% of yoga practitioners included in this investigation discontinued their use of yoga due to side-effects. To the best of our knowledge, this is the first investigation to quantify whether practitioners discontinued use of yoga as a result of injury sustained during the practice of yoga. Previous investigations have documented anywhere from 21% to 62% of yoga practitioners experiencing a yoga-related injury, whether or not the injury led to discontinued practice.^[12,13] The sample examined in the current investigation may be a

Table 1: Characteristics of yoga practitioners who discontinued practice due to a side-effect

Demographic item	Percentage
Sex	
Male	18.7
Female	81.3
Ethnicity	
White	81.2
Black	12.5
Hispanic	6.3
Marriage status	
Married	37.5
Non-married	62.5
	Mean (SD)
Age	48.19 (17.29)
BMI	27.21 (6.26)*

*A BMI of 25.00-29.99 is considered "overweight." BMI = Body mass index; SD = Standard deviation

factor explaining the disparate rates documented herein when compared with previous reports. Specifically, our use of a systematically derived nationally-representative sample, when compared to convenience samples from yoga centers and yoga-affiliated organizations, may have led to under sampling yoga practitioners who are more likely to experience injury due to more frequent and perhaps more advanced practice. Less than one third of respondents who experienced a side-effect reported medical attention being required for the side-effect. These findings suggest that injury due to use of yoga is an infrequent barrier to continued yoga practice and severe injury due to the use of yoga is rare. In fact, Mikkonen *et al.*^[13] documented that yoga practitioners surveyed reported no permanent impairment from yoga injuries.

Of the side-effects reported, the most common was back pain. Approximately half of those reporting back pain sought medical attention. This finding echoes that of previous investigations, which document back injury among most common injuries.^[11,13] Given the growing body of evidence supporting yoga as an effective treatment for back pain, particularly low back,^[14,15] more individuals with a propensity to back injury may turn to yoga as a healing modality. In an effort to better insure the safety of these individuals, further investigations are needed. Specifically, researchers need to determine what postures are most commonly associated with back injury and identify both physical and psychological characteristics of individuals who may be particularly susceptible to back injury during yoga practice. Penman *et al.*^[12] reported the postures most commonly associated with injuries were advanced postures (i.e., headstand, shoulder stand and lotus); however, more studies of this nature are needed to improve generalizability of the findings. In particular,

future investigations should focus on identifying specific postures that may have been the cause/catalyst for injury and if injuries required medical attention.

Limitations

Firstly, the use of secondary data limits the manner in which variables were operationalized. For example, a timeframe in which the injury occurred was not specified and therefore does not allow for the calculation of meaningful rates of injury. Secondly, frequency and level of yoga practice, important factors to consider in the context of yoga injuries, were not quantified. Lastly, this study is limited by the potential social desirability, response, and recall biases associated with self-report data.

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How to cite this article: Holton MK, Barry AE. Do side-effects/injuries from yoga practice result in discontinued use? Results of a national survey. *Int J Yoga* 2014;7:152-4.

Source of Support: Nil, **Conflict of Interest:** None declared