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# Magnitude and causes of loss to follow-up among patients with viral hepatitis at a tertiary care hospital in Saudi Arabia

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## KEYWORDS

Viral hepatitis;  
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## Abstract

**Background:** Non-adherence with recommended follow-up visits is a major barrier for completing treatment of viral hepatitis and is consequently associated with unfavorable outcomes of health services.

**Objectives:** To estimate the magnitude and identify perceived reasons and patient characteristics associated with loss to follow-up in a tertiary care setting.

**Methods:** A two-step cross-sectional design was used, including a chart review (2011) followed by phone survey (2012). Loss to follow-up was recorded among those who were diagnosed with hepatitis B (HBV) or C (HCV) during 2009–2010 but never returned for recommended/scheduled follow-up appointment(s).

**Results:** A total of 328 patients (202 HBV and 126 HCV) were included in the current analysis. The average age was  $49.6 \pm 17.9$  years, and 57% were males. Out of 328,

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131 (40%) were not advised to do follow-up, and 98 (30%) were not doing follow-up. Perceived reasons for loss to follow-up were as follows: unaware that a follow-up appointment was scheduled (69%), never informed of need for follow-up by health-care provider (15%), personal belief that follow-up was not necessary (9%), logistical reasons (3%) and other reasons (5%). Loss to follow-up was higher among those who had been diagnosed with HBV, referred by non-liver-related specialty, never advised to follow-up, unaware of their diagnosis, incorrectly identified their type of hepatitis, lacking hepatitis complications, having full medical coverage, pregnant, and those with low knowledge or negative attitude towards hepatitis.

*Conclusions:* Loss to follow-up is a significant problem among patients with hepatitis in a tertiary care center, with several patient and system failures being implicated.

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## Introduction

Viral hepatitis is a major global health problem that creates a substantial burden on healthcare services [1]. The World Health Organization (WHO) estimated that approximately two billion people have been infected with hepatitis B virus (HBV), of whom over 240 million are chronically infected [1,2]. Additionally, approximately 150 million are chronically infected with hepatitis C virus (HCV) [3]. The complications arising from both HBV and HCV infections are responsible for over one million deaths every year [2,3].

In Saudi Arabia, despite the considerable decline in HBV and HCV infections following the introduction of a universal HBV vaccination strategy in 1989, universal blood bank screening, and premarital screening, a recent study showed that both HBV and HCV incidence are higher than expected [4]. Additionally, HBV- and HCV-related burden of liver disease is likely to increase in the next decades as infected children become older and the large numbers of undiagnosed cases begin manifesting at an advanced stage of the disease [5,6]. This may further increase the burden on healthcare resources and translate to a greater number of patients requiring liver transplantation [6].

The efficacy of recent advances in hepatitis screening and management in decreasing the burden of viral hepatitis is believed to be undermined by under-diagnosis, inefficient referral systems, low patient awareness, and limited access to care [7,8]. Viral hepatitis patients should be followed for assessing disease progression and to monitor the response to treatment [9]. It has been shown that non-adherence with recommended follow-up visits is a major barrier for completing treatment of viral hepatitis and is consequently associated with unfavorable outcomes of health resources [8,10–12]. In

this context, a study in Saudi HCV patients showed that loss of follow-up was the main reason for failure to complete appropriate treatment [13]. However, there is lack of local data estimating the magnitude of the problem and underlying reasons contributing to it. More importantly, patient characteristics associated with loss to follow-up have never been examined. The objective of the current study was to estimate the magnitude and identify perceived reasons and patient characteristics associated with loss to follow-up at the hepatology outpatient settings of a tertiary care center in Saudi Arabia.

## Methods

### Setting

The current study was conducted at King Abdulaziz Medical City (KAMC) in Riyadh, Saudi Arabia. KAMC (Riyadh) is an approximately 900-bed tertiary care facility. KAMC provides healthcare services to over 600,000 Saudi National Guard soldiers, employees, and their families. The care provided ranges from primary and preventive care to tertiary care. The public health section of infection control department provides surveillance, educational, and preventive services, including improved utilization of preventive services for hepatitis patients and their contacts. The hepatology division provides inpatient and outpatient services for approximately 4700 clinic visits every year.

### Study design

This is a two-step cross-sectional study design, including chart reviews followed by phone survey for all those matching the inclusion criteria for this

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