were given to the patients. Sinuses grafted were allowed to heal for 4–6 months, depending upon the size of the area grafted.

Grafted sinuses were evaluated radiographically several months post surgically (Fig. 4). After the patients were given local anesthesia, a full thickness periosteal flap was elevated. The sinus windows were evaluated for the density of bone, and surgical rotary instruments were utilized with or without osteotomes (Salvin Dental, Charlotte, NC) to prepare the osteotomy sites for implant surgery.

Dental implants were placed in proper tooth positions with or without a surgical stent. The implants were submerged in a standard two-stage surgical protocol for patients wearing a removable prosthesis and in a single-stage surgical procedure for others (Fig. 5).

Implants were allowed to heal for 3–6 months, after which radiographs were taken and implant exposure was performed. Hand reverse torque of the implant was applied to implants prior to abutment placement. Implants were then restored with either fixed, cementable porcelain fused to metal prosthesis or screw-retained bar overdentures (Fig. 6).

Results

The ages of the patients ranged from 26 years old to 77 years old. The greatest number of patients was between ages 51 to 60. Of all the patients involved, the 51–60 age group was highest for males, and the 41–50 age group and the 61–70 age group were highest for females (Chart 1).

Analysis of the patients revealed that a total of 42 patients were treated with sinus graft surgery. A total of 56 sinuses were grafted with mineralized bone allograft over a 36-month period. Most of the patients had slight to moderate postoperative pain and swelling after surgery. Some patients mentioned bruising a few days postoperatively.

Postoperative follow-up visits revealed most surgical sites healing well over a 1 to 2 week period.