



Figure 8. Impact perception responses ordered in summary scale structure.

5.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

5.1.1 Background to analyses

Additional analyses were required to assess whether these impact perceptions varied significantly according to age group, gender, nationality and crowding perception. Figure 8 and Table 3 show the impact perception scales which were created for these analyses (refer Section 4.1.1).

TABLE 3. SUMMARY SCALES FOR SOCIAL AND PHYSICAL IMPACT PERCEPTIONS (REFER APPENDIX 2).

SCALES	DESCRIPTIONS
Physical damage	Litter/waste, vegetation damage, track trampling/damage
Hut/track congestion	Insufficient bunks, too many people, noise, rushing for bunks, too many people/big groups, guided groups
Overdevelopment	Excessive level of huts, tracks, campsites, signs
Campsite congestion	Too many people, noise, rushing for sites, informal campsite wear
Water/toilet/hygiene	Inadequate water/toilet supply, doubts over water hygiene

(extra individual items — plane noise)

5.1.2 Significant findings

Differences in these impact scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand/overseas), and crowding perceptions (uncrowded/crowded) were analysed (refer Section 4.1 for method). The significant effects and interactions associated with the analysis using these independent variables are summarised in Table 4. These results indicate that social impacts from hut and track congestion are particularly important for management attention.

TABLE 4. SIGNIFICANT EFFECTS ON IMPACT SCALES.

SOURCE OF SIGNIFICANT EFFECTS	SIGNIFICANT IMPACT SCALES	MEAN VALUES (ADJUSTED*)	
		Uncrowded	Crowded
Crowding effect <i>F(6,244) = 18.83, p = .000</i>	Hut/track congestion <i>F(1,348) = 89.41, p = .000</i>	1.23	1.94
	Overdevelopment <i>F(1,348) = 15.88, p = .000</i>	1.37	1.67
	Water/toilet/hygiene <i>F(1,348) = 7.67, p = .006</i>	1.42	1.59
	Physical damage <i>F(1,348) = 6.52, p = .011</i>	1.28	1.46
	Campsite congestion <i>F(1,348) = 3.30, p = .070</i>	1.05	1.19

* Mean values for summary scales are divided by the number of constituent items to give a figure interpreted using the original question categories (e.g., 1 = Not noticed 2 = Not bothered 3 = Bothered a little 4 = Bothered a lot)

Crowded effect

Crowded visitors had significantly higher perceptions of almost all types of impacts (Table 4). This distinction was most prominent in the 'hut/track congestion' scale. Additional exploration of the constituent items in this scale (refer Figure 8 and Table 4) highlighted that while all made important contributions to the greater perception of congestion impacts among crowded visitors, the numbers present in huts and insufficient bunk space appeared to contribute most. Comparison of the proportions of visitors bothered by these impacts (%) showed that crowded visitors were particularly more often bothered than uncrowded visitors with seeing too many in the huts (47% vs 4%), insufficient bunk space (35% vs 5%), noise in the huts (38% vs 13%) 'having to rush for bunks' (29% vs 5%) and 'seeing too many on the track' (25% vs 4%). Overall these figures reinforce the analytical results showing much greater negative perceptions of these hut congestion impacts among the visitors who felt crowded. This hut focus was reinforced by responses summarised in the 'overdevelopment' scale, where all items were important, but where overdevelopment of huts appeared the most prominent item.

Additional exploration of the other significant scales highlighted littering issues as the most prominent items within the 'physical damage' scale, and both the both water supply and toilet facility items within the 'water/toilet/hygiene' scale. All campsite congestion items were at a similarly higher level among crowded visitors, although the overall effect was not strongly significant ($p = .070$).

5.2 RELATING IMPACT PERCEPTION SCALES TO OVERALL TRIP EVALUATIONS

None of these impact scales were statistically associated with overall satisfaction, indicating that no specific social or physical impact perceptions were related to how the trip was evaluated. However, significant associations were found between impact perceptions and the overall crowding evaluation. An SPSS multiple regression ($F(3,390) = 97.95$, signif. $F = .0000$) identified an association (adjusted $r^2 = .425$) between the impact scales (independent) and Crowding (dependent). The Hut/track congestion scale ($b = .645$, signif. $T = .0000$) provided most explanation of this association⁷. That is, the experience of being bothered by the social impacts associated with the hut/track congestion scale was strongly associated with the experience of feeling crowded. This interpretation was supported by the strong correlation ($r = .64$) between hut/track congestion and crowding perceptions. Additional correlations calculated for crowding and the individual items comprising the hut/track congestion scale highlighted 'seeing too many in the hut' ($r = .60$) and 'insufficient bunk space' ($r = .51$) as being the most prominent individual impacts. Most other items were moderately correlated with crowding at around $r = .4$, with the exception of 'seeing guided groups' which was only weakly correlated ($r = .17$).

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⁷ Strong correlation was also found between crowding, and hut/track congestion ($r = .64$, $p = .000$). In addition, a temporary variable composed of the extreme high and low crowding scores was used in a separate multiple regression analysis to test this association further, and demonstrated a stronger association with the same impact scale (e.g., $r^2 = .590$; $b(\text{hut/track}) = .729$).