This editorial refers to Associations between preoperative functional status and functional outcomes of total joint replacement in the Dominican Republic, by Kyle E. Dempsey et al., on pages 1802-8.

The article by Dempsey et al. [1], published in this edition of Rheumatology, is the first to document the relationship between preoperative functional status and outcomes after joint replacement in a developing country. Their data showed that patients in the Dominican Republic undergoing hip or knee joint replacement improved greatly, and had similar good outcomes after 1 year, irrespective of the severity of the disease at the time of surgery. This finding differs markedly from that of numerous similar studies undertaken in developed countries, which have consistently shown that patients who are severely functionally compromised at the time of surgery do not end up as well as those with less severe disease [2, 3]. We have illustrated comparative data about knee replacement patients from the study by Dempsey et al. (in the Dominican Republic) with data from developed countries brought together by Lingard et al. [4] in Fig. 1. Not only do the final outcomes in the Dominican sample seem unrelated to preoperative scores, but also patients undergoing surgery with the worst scores (lowest tertile) exceeded the outcomes of the healthiest patients from developed countries (WOMAC >57 group)—a remarkable result.

These data relate to the important issue of whether it is better to do joint replacements earlier in the course of arthritis (as has been argued from the data coming from developed countries) or to leave them until later on [5]. As people live longer and become obese, the demand for joint replacement is rising throughout the world. Although joint replacements are both effective and cost-effective [6, 7], and at least for hip OA, it is cost-effective to perform them early [8], they are not cheap and some form of rationing is likely to be necessary, particularly in developing countries. Therefore the issue is an important one.

We argue that Dempsey et al.’s data should not be accepted at face value because of the unusual circumstances in which the surgery was carried out (provision of joint replacements by a visiting team) and the relatively low numbers studied (n = 97; 70 knee and 27 hip replacements), but we prefer to put those concerns aside and consider why a study in the Dominican Republic would produce such different results from similar studies done in North America and Europe. We discuss three possible reasons: patient selection, the measures used to assess outcomes and sociocultural context.

Patient selection may explain these data discrepancies. We know that comorbidities, particularly anxiety and depression, can influence the outcomes of joint replacement [9, 10], and the data presented suggest that patients in the lowest tertile from the Dominican Republic were probably suffering from less anxiety and depression at the time of surgery than the average patient operated on in the West (SF-36 Mental Health: 76.2 vs 72.1, respectively) for knee replacement. Also, a higher proportion of Dominican Republic patients from the lowest preoperative function tertile were assessed as having a high (i.e. >90%) chance of relieving pain and a low (i.e. <1%) chance of major surgical complications than patients from the top tertile in the same study (low tertile: 87% and 74%; top tertile: 72% and 48%, respectively). Another variable known to affect outcomes is X-ray severity at the time of surgery: those with the most severe radiographic change at the time of surgery have the best outcomes [11]. We also noted that Dempsey et al.’s patients were selected on the basis of having advanced arthritis and joint destruction.

Another possible explanation is that the patient-related outcome measures used (WOMAC and SF-36) are the ones that were developed in resource-rich Western countries, and that these measures may not behave in the same way in the Dominican Republic as they do in a Western setting. The authors confirmed that these instruments were reliable in their setting, but we do not know about their comparative responsiveness and other psychometric properties in different countries.

A final possibility that we would like to raise is that data about medical interventions that are generated from the developed world are not applicable to the developing world. There may be relevant genetic differences between populations, and OA is associated with a gene variant characteristic of European ancestry [12]. In addition, the different sociocultural contexts of disease, illness and health care in developing countries from those in the West may mean that we will always see differences in outcomes of interventions when we compare studies in this way. The realistic research paradigm suggests that all truth is dependent on context, and that no findings generated from relatively complex systems (such as human beings and health care delivery systems) can ever be generalized to other contexts [13]. If the observation of differences in response to common interventions
undertaken in different contexts is generally true, then we need to rethink medicine, particularly in the context of applying it to the developing world. Our evidence base is generated almost exclusively in rich Western countries, and much health care undertaken in the developing world is predicated on the belief that these data are appropriate for application in other countries. That might not be true.

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Paul Dieppe1 and Rubén Ernesto Muñica Mota1

1Institute of Health Services Research, University of Exeter Medical School, Exeter, UK.

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Correspondence to: Paul Dieppe, Room 002, Vesey Building, Salmon Pool Lane, University of Exeter Medical School, University of Exeter, Exeter EX2 4SG, UK.

E-mail: p.dieppe@exeter.ac.uk

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