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EFFECTIVENESS OF A FILIPINO LANGUAGE VIDEO ON INSULIN INJECTION METHODS IN IMPROVING TECHNIQUE OF INSULIN INJECTION AND BLOOD GLUCOSE LEVEL AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN A TERTIARY HOSPITAL: A RANDOMIZED CONTROLLED TRIAL

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INTRODUCTION
Insulin is one of the oldest and most effective of the different medications for the management of diabetes. However, its effectiveness is dependent on feedback and dose adjustment through self-monitoring of blood glucose, and correct injection technique. Video-based materials are recognized as powerful learning tools as these help learners visualize procedures and details that are difficult to explain by text or static photos.

At the time of the COVID-19 pandemic, there were no available video-based educational material in the Filipino language on insulin injection technique. Hence, we aimed to create one and determined its effectiveness in improving knowledge and skills on insulin injection technique, and blood glucose level among persons with type 2 diabetes (T2DM).

METHODOLOGY
This is a randomized controlled study done at the diabetes clinic of a tertiary hospital in Quezon City, Philippines. Included were patients aged >18 years, patients with T2DM on insulin, with HbA1c >7%, who can read and understand Filipino, and can give informed consent. Excluded were pregnant women, those who were mentally challenged, had no access to the internet, and could not perform 7-point SMBG for 3 consecutive days, and those on medications that affect blood sugar such as steroids, chemotherapeutic, and antipsychotic medications.

In Phase I, an original Filipino language insulin injection video education material for the use of vial and syringe, and pen device was created by the author and a panel of experts. The material was then translated into the Filipino language by a local university-based language expert. Focus group discussions with patients with T2DM were done to improve content. The final video was then uploaded to a password-protected website.

In Phase II, participants were randomized into a control or intervention group. Using a checklist, a diabetes educator performed a baseline assessment of the patient's knowledge and skills on insulin injection via online consultation. Standard health education by demonstration and return demonstration was done for both groups but additionally, the intervention group was given access to the video education materials uploaded on the website. The second assessment of skills was done after 7 days and patients were instructed to do a 7-point SMBG.

RESULTS
Of the 146 eligible participants, 76 consented and were randomized into intervention and control groups with 32 participants from each group completing the study.

A T-test was used to compare the average percentage scores of participants. Similar baseline knowledge and skills of participants in the intervention and control group were observed (62.5 ± 14.265 vs 58.151 ± 15.2, $p = 0.23$). After the intervention, there was an increase in score among the 2 groups using vial and syringe (58.597 ± 15.269 vs 86.014 ± 10.785, $p < 0.01$) and pen device (62.151 ± 14.338 vs 86.667 ± 9.584, $p < 0.01$), showing significant statistical differences.

There was also lower mean SMBG levels in the intervention group compared to the control group but the difference was not statistically significant.

CONCLUSION
This study established that the use of video education material presented in the Filipino language is an effective tool in improving the skills on proper insulin injection technique. There was a lower mean blood glucose level after the intervention.

KEYWORDS
type 2 diabetes, Filipino insulin injection, video insulin injection technique