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A review of the short form health survey version 2

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Background: The short form health survey version 2 (SF-12v2) is a commonly used measure of HRQOL. But, it has received much less psychometric attention.

Aim: The aim of this study is to review research articles that used SF-12v2 survey.

Method: In this study, sage data base were searched and 12 articles were revealed using of SF-12v2, sample description, testing reliability or validity, and date of publishing (within the last 10 years).

Results: SF-12v2 was used on diverse age groups of participants. Cronbach's alpha coefficients for the tool were ranged from 0.60 to 0.87, which support the internal consistency reliability. The convergent validity of the SF-12v2 was supported in some of the research.

Recommendations: Some recommendations were emerged to guide the future research.

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Low frequency sonophoresis mediated transdermal and intradermal delivery of ketoprofen

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Purpose: The objective of this study was to test low frequency sonophoresis as an active enhancement technology for transdermal and topical delivery of ketoprofen and to optimize ultrasound parameters for delivery.

Methods: Sonophoresis was carried out with a sonicator operating at 20 KHz frequency and intensity of 6.9 W/sq.cm (Sonics VCX 500, Sonics and Materials, Newtown, CT). Donor formulation was saturated solution of ketoprofen in 50 percent propylene glycol containing 3.5 mg/ml drug. Vertical Franz diffusion cells were used to study transdermal and topical delivery of ketoprofen in vitro. Permeation studies were carried out on excised hairless rat skin over a period of 24 hours. Ultrasound application time, duty cycle and coupling medium were optimized. Aluminum foil pitting was carried out to confirm acoustic cavitation as the mechanism of enhanced sonophoretic delivery. Transepidermal water loss measurements (TEWL) were performed to measure the extent of barrier disruption following sonophoresis. Confocal microscopy was used to visualize dye penetration through sonophoresis treated skin.

Results: Application of ultrasound (2 minutes, 1% SLS coupling medium) significantly enhanced permeation of ketoprofen from 74.87±5.27 µg/sq.cm for passive delivery to 491.37±48.78 µg/sq.cm for sonophoresis. The lag time for delivery reduced from 6 hours for passive permeation to 2 hours for sonophoresis. Drug levels in underlying skin layers increased from 34.69±7.25 µg following passive permeation to 175.04±20.56 µg following sonophoresis. TEWL increased from 31.6±0.02 (passive) to 69.5±12.60 (optimized sonophoresis conditions) indicating disruption of barrier properties. Confocal microscopy images depicted enhanced dye penetration through sonophoresis treated skin hence confirming barrier disruption.

Conclusions: Low frequency sonophoresis with optimized ultrasound parameters can be effectively used to actively enhance transdermal and topical delivery of ketoprofen.

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