# Additional File 3: Table S:1. Methodological quality of included studies using the QASTDD tool.

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| QASTDD tool criteria | Abraham et al. (2010) | AbuDagga et al. (2014) | Anderson et al. (2015) | Anderson et al. (2018) | Baik et al. (2016) | Boon et al. (2008) | Bourke et al. (2012) | Brais et al. (2017) |
| 1. Explicit theoretical framework
 | 3 | 1 | 1 | 1 | 1 | 2 | 3 | 1 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 |
| 1. Clear description of research setting
 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 |
| 1. Evidence of sample size considered in terms of analysis
 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 |
| 1. Description of procedure for data collection
 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 3 |
| 1. Rationale for choice of data collection tool(s)
 | 0 | 2 | 3 | 2 | 0 | 2 | 2 | 1 |
| 1. Detailed recruitment data
 | 3 | 1 | 3 | 3 | 3 | 2 | 1 | 3 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 0 | 0 | 2 | 3 | 0 | 0 | 1 | 1 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Good justification for analytical method selected
 | 1 | 2 | 3 | 3 | 3 | 2 | 3 | 2 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| Total score/maximum score | 28/42 | 26/42 | 32/42 | 30/42 | 27/42 | 28/42 | 29/42 | 28/42 |
| Total score (%) | 67% | 62% | 76% | 71% | 64% | 67% | 69% | 67% |
| QASTDD tool criteria | Burden et al. (2015) | Carracedo-Martinez et al al. (2017) | Chamberlain et al. (2014) | Chitagunta et al. (2009) | Chressanthis et al. (2012) | Conti et al. (2012) | DeVore et al. (2018) | Donohue et al. (2018) |
| 1. Explicit theoretical framework
 | 2 | 1 | 1 | 2 | 2 | 3 | 2 | 2 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| 1. Clear description of research setting
 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| 1. Evidence of sample size considered in terms of analysis
 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 3 | 1 | 3 | 2 | 2 | 2 | 3 | 2 |
| 1. Description of procedure for data collection
 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 2 |
| 1. Rationale for choice of data collection tool(s)
 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 1 |
| 1. Detailed recruitment data
 | 3 | 0 | 3 | 2 | 1 | 1 | 0 | 3 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 1 | 1 | 0 | 2 | 1 | 2 | 0 | 0 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Good justification for analytical method selected
 | 2 | 0 | 3 | 2 | 3 | 3 | 3 | 3 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 1 | 2 | 2 | 1 | 2 | 3 | 3 |
| Total score/maximum score | 31/42 | 19/42 | 31/42 | 30/42 | 26/42 | 30/42 | 31/42 | 29/42 |
| Total score (%) | 74% | 45% | 74% | 71% | 62% | 71% | 74% | 69% |

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| QASTDD tool criteria | Ducharme and Abraham (2008) | Dybdhal et al. (2011) | Friedman et al. (2010) | Fuksa et al. (2015) | Garjon et al. (2012) | Groves et al. (2010) | Haider et al. (2008) | Hickson et al. (2019) | Hirundassamee and Ratanawijitrasin (2009) | Hsieh and Liu (2012) |
| 1. Explicit theoretical framework
 | 3 | 2 | 3 | 1 | 1 | 3 | 1 | 2 | 1 | 1 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Clear description of research setting
 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| 1. Evidence of sample size considered in terms of analysis
 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 3 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 3 |
| 1. Description of procedure for data collection
 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 |
| 1. Rationale for choice of data collection tool(s)
 | 2 | 2 | 1 | 1 | 2 | 3 | 2 | 1 | 1 | 3 |
| 1. Detailed recruitment data
 | 3 | 3 | 2 | 1 | 3 | 3 | 2 | 3 | 2 | 2 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  |  |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 |
| 1. Good justification for analytical method selected
 | 3 | 3 | 1 | 2 | 1 | 3 | 3 | 3 | 1 | 3 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  |  |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 1 | 2 | 2 | 1 | 2 | 3 | 2 | 0 | 2 |
| Total score/maximum score | 32/42 | 30/42 | 27/42 | 25/42 | 25/42 | 33/42 | 30/42 | 29/42 | 22/42 | 31/42 |
| Total score (%) | 76% | 71% | 64% | 60% | 60% | 79% | 71% | 69% | 52% | 74% |
| QASTDD tool criteria | Huang et al. (2013) | Huskamp et al. (2013) | Iyengar et al. (2011) | Karampli et al. (2020) | Keating et al. (2018) | Keating et al. (2020) | Kennedy et al. (2020) | Kerezsturi et al. (2015) | King et al. (2013) |
| 1. Explicit theoretical framework
 | 1 | 1 | 3 | 3 | 1 | 3 | 2 | 1 | 2 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 |
| 1. Clear description of research setting
 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 2 |
| 1. Evidence of sample size considered in terms of analysis
 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 2 |
| 1. Representative sample of target group of a reasonable size
 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| 1. Description of procedure for data collection
 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 3 |
| 1. Rationale for choice of data collection tool(s)
 | 0 | 3 | 3 | 0 | 0 | 2 | 2 | 1 | 3 |
| 1. Detailed recruitment data
 | 2 | 2 | 2 | 0 | 0 | 3 | 3 | 1 | 2 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 0 | 0 | 3 |  | 3 | 3 | 0 | 3 | 1 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 2 | 3 | 3 |  | 3 | 3 | 3 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  | 2 |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Good justification for analytical method selected
 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  | 1 |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 2 |
| Total score/maximum score | 26/42 | 28/42 | 34/42 | 26/42 | 26/42 | 31/42 | 29/42 | 27/42 | 32/42 |
| Total score (%) | 62% | 67% | 81% | 62% | 62% | 74% | 69% | 64% | 76% |

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| QASTDD tool criteria | King and Bearman (2017) | Knudsen et al. (2009) | Lin H et al. (2011) | Lin S et al. (2011) | Liu et al. (2011) | Liu and Gupta (2011) | Lo-Ciganic et al. (2016) | Luo et al. (2017) | Luo et al. (2018) | Luo et al. (2019) |
| 1. Explicit theoretical framework
 | 2 | 3 | 3 | 3 | 3 | 3 | 1 | 0 | 2 | 2 |
| 1. Statement of aims/objectives in main body of report
 | 2 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| 1. Clear description of research setting
 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 2 |
| 1. Evidence of sample size considered in terms of analysis
 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 |
| 1. Description of procedure for data collection
 | 3 | 2 | 2 | 1 | 2 | 1 | 2 | 3 | 3 | 1 |
| 1. Rationale for choice of data collection tool(s)
 | 3 | 1 | 2 | 3 | 2 | 1 | 3 | 1 | 1 | 2 |
| 1. Detailed recruitment data
 | 2 | 3 | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 3 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 3 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 3 | 1 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  |  |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Good justification for analytical method selected
 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  |  |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 2 | 2 | 2 |
| Total score/maximum score | 33/42 | 27/42 | 27/42 | 29/42 | 27/42 | 30/42 | 28/42 | 21/42 | 28/42 | 28/42 |
| Total score (%) | 79% | 64% | 64% | 69% | 64% | 71% | 67% | 50% | 67% | 67% |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| QASTDD tool criteria | Manchanda et al. (2008) | Martin et al. (2017) | Murphy et al. (2018) | Netherland et al. (2009) | Ohl et al. (2013) | Ohlsson et al. (2009) | Patel et al. (2015) | Potpara et al. (2017) | Rodwin et al. (2020) | Sato et al. (2012) |
| 1. Explicit theoretical framework
 | 3 | 1 | 1 | 3 | 2 | 3 | 1 | 2 | 2 | 1 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 |
| 1. Clear description of research setting
 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 3 |
| 1. Evidence of sample size considered in terms of analysis
 | 2 | 3 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1. Description of procedure for data collection
 | 2 | 3 | 1 | 2 | 3 | 3 | 2 | 3 | 2 | 2 |
| 1. Rationale for choice of data collection tool(s)
 | 2 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 |
| 1. Detailed recruitment data
 | 2 | 3 | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 1 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 3 |  | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 0 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 3 |  | 2 | 2 | 3 | 3 | 3 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 | 2 | 3 |  |  |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1. Good justification for analytical method selected
 | 3 | 1 | 1 | 2 | 3 | 3 | 3 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 | 0 | 1 |  |  |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 3 | 1 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 0 |
| Total score/maximum score | 36/48 | 29/42 | 21/42 | 24/42 | 34/42 | 30/42 | 27/42 | 26/42 | 28/42 | 24/42 |
| Total score (%) | 75% | 69% | 50% | 57% | 81% | 71% | 64% | 62% | 67% | 57% |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| QASTDD tool criteria | Savage et al. (2012) | Scholten et al. (2015) | Steinberg et al. (2013) | Tanislav et al. (2018) | Tobin et al. (2008) | Tsai et al. (2010) | Wang et al. (2010) | Weir et al. (2012) | Wen et al. (2011) | Zhang et al. (2019) | Zhang et al. (2020) |
| 1. Explicit theoretical framework
 | 3 | 3 | 0 | 0 | 1 | 2 | 2 | 1 | 3 | 3 | 1 |
| 1. Statement of aims/objectives in main body of report
 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| 1. Clear description of research setting
 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| 1. Evidence of sample size considered in terms of analysis
 | 1 | 1 | 3 | 1 | 0 | 2 | 2 | 2 | 3 | 1 | 1 |
| 1. Representative sample of target group of a reasonable size
 | 2 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 2 |
| 1. Description of procedure for data collection
 | 1 | 3 | 3 | 1 | 3 | 2 | 3 | 3 | 2 | 3 | 2 |
| 1. Rationale for choice of data collection tool(s)
 | 2 | 3 | 3 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 2 |
| 1. Detailed recruitment data
 | 2 | 2 | 3 | 1 | 2 | 3 | 3 | 2 | 3 | 2 | 2 |
| 1. QUANTITATIVE only: Statistical Assessment of reliability and validity of measurement tool(s)
 | 1 | 0 | 3 | 0 |  | 0 | 0 | 1 | 0 | 0 | 0 |
| 1. QUANTITATIVE only: Fit between stated research question and method of data collection
 | 3 | 3 | 3 | 3 |  | 2 | 3 | 3 | 2 | 3 | 3 |
| 1. QUALITATIVE only: Fit between stated research question and format and content of data collection tool e.g. interview schedule
 |  |  |  |  | 2 |  |  |  |  |  |  |
| 1. Fit between research question and method analysis
 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 2 |
| 1. Good justification for analytical method selected
 | 3 | 2 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 2 | 0 |
| 1. QUALITATIVE only: Assessment of reliability of analytical process
 |  |  |  |  | 2 |  |  |  |  |  |  |
| 1. Evidence of user involvement in design
 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Strengths and limitations critically discussed
 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 3 | 1 |
| Total score/maximum score | 28/42 | 30/42 | 33/42 | 19/42 | 21/42 | 30/42 | 30/42 | 31/42 | 31/42 | 29/42 | 21/42 |
| Total score (%) | 67% | 71% | 79% | 45% | 50% | 71% | 71% | 74% | 74% | 69% | 50% |