

## **Knowledge, Attitude, And Practice (Kap) Of Waste Management During Covid-19 Among Public In Kuala Muda, Kedah**

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### **Abstract**

A Low Public Participation In Waste Separation At Source Has Contributed To The Low Rate Of Recycling And Several Solid Waste Management Problems. The Covid-19 Pandemic Also Brings Substantial Effect On The Waste Management Where The Waste Generation Keeps Increasing Especially The Single-Used Products Such As Face Masks, Disinfection Wipes And Gloves. The Absence Of Separation Practice For Covid-19 Potential Waste Will Bring Negative Impacts To The Environment. A Cross-Sectional Survey Using A Simple Random Sampling Was Performed In Selected Study Area In Kuala Muda During Covid-19 Pandemic Involving 101 Respondents From Bandar Amanjaya. The Aim Of This Study Is To Determine The Level Of Knowledge, Attitude, And Practice (Kap) Of Waste Management Based On Separation Practice During Covid-19. A Validated And Pre-Tested Questionnaire Of This Survey Consisted Of Five Sections: Demographic Profile, Knowledge, Attitude, Practice, And Recommendation, With A Total Of 31 Questions Comprised From The Kap Parts. The Descriptive Data Analysis Of This Study Was Analyzed Using Ibm Spss Software. The Finding Revealed 80.2% Of Respondents In Kuala Muda Had High Level Of Knowledge, 44.6% Had Moderate Level Of Attitude And 58.4% Of Respondents Had Moderate Level Of Practice Towards Waste Management Based On Separation Practice During Covid-19.

**Keywords:** Separation Practice, Waste Management, Covid-19, Descriptive Statistic, Kedah

### **Introduction**

Accomplishing A Comprehensive Management Of Waste In Malaysia Requires Efforts And Cooperation From Both Public And The Government. The Continuing Efforts Such As Waste Separation At Source And Practices Of 3r (Reduce, Reuse, Recycle) By The Government, Local Authorities And Related Private Organizations However Still Bring A Challenge In Waste Management Due To Lack Of Public Participation, Commitment, And Attitudes In Making Such Practices Into Daily Routine (**Moh & Abd Manaf, 2017**). Massive Amount Of Waste Generated Also Being Sent To The Treatment Facilities Which Is Not Cost-Effective And Dumped Into The Landfills That Should Be Considered As The Last Option For Waste Disposal. The Critical Factors That Cause The Higher Waste Generation In Malaysia Are Due To Rapid Urbanization And The Advancement Of The Human Lifestyles That Change Across The Time. In Fact, Human Generates A Lot Of Waste To Entertain Every Human Need Such As Eating, Fashion, Travelling, And Housing (**Arora & Agarwal, 2011**). Hence, The Solid Waste Generation Keeps Increasing Years By Years.

Additionally, The Emergence Of Covid-19 Pandemic Also Brings A Spontaneous Effect On Waste Management Practice Among Malaysians. To Reduce The Transmission Of Virus, Wearing Face Masks To The Public Places Has Been Obligated To All Malaysians Which Eventually Increase The Usage Of Single-Used Products (**Roger, 2020**). More Household Waste Has Been Generated During Movement Control Order (Mco) Especially The Usage Of Plastics From The Delivery Services As During The Pandemic, Malaysians Mostly Adapted To The New Norm To Stay At Home (**Muslim, 2020**). This Will Create A Significant Impact To The Environment If The Management Of Waste Is Not Being Controlled. Amid The Covid-19 Crisis, Most Of Our Lifestyles Change To Adapt To The

New Norms After The Covid-19 Outbreak. Referring To The Latest Research On Public Knowledge, Attitudes, And Practices Towards Covid-19, It Stated That Most Malaysian Public Held Positive Attitudes Towards The Successful Control Of Covid-19, Taking Precautions Such As Avoiding Crowds And Practicing Proper Personal Hygiene Including Wearing Face Masks And Applying Hand Sanitizer (**Azlan *Et AL.*, 2020**). Corresponding To The Public Positive Attitudes And Knowledge Towards Covid-19, With This Assessment, It Is Predicted That The Public Has Taken Into Consideration About The Cautious Preventive Measures, Eventually Will Show Great Attitudes And Practices On The Current Waste Management Practice Particularly On Waste Separation During Covid-19 Pandemic.

This Study Is Designed To Approach The Public Level Of Knowledge, Attitude, And Practice (Kap) Of Waste Management Based On Separation Practice During Covid-19 In Kuala Muda, Kedah. A Kap Assessment Is Used To Identify Human Behaviours In Various Field Which The Information Of What They Know, How They Feel, And The Action Of Their Insight Will Be Analyzed To Understand Better Correlation Or Potential Improvement Related To The Certain Issue (**Ahamad & Ariffin, 2018**). The Kap Of The Public Towards The Proper Waste Management Based On The Separation Practice Appears To Be Crucial As The Basic Stand For An Individual To Play An Important Role In Providing The Solution To The Future Environment Problem (**Arora & Agarwal, 2011**). The Kap Assessment Data In The Study Can Be Helpful For Future Implementation Or Planning To Enhance Current Waste Management System Based On The Information Of The Respondents' Knowledge In The Separation At Source Practice Especially During Covid-19, Their Stance On The Practice Of Waste Separation And Their Actual Participation In The Waste Separation In Their Area.

### **Literature Review**

As Greater Waste Keeps Generated Days By Days, This Issue Brings Major Concern In Waste Management In Malaysia Corresponding To The Highly Dependent On Landfills As Main Waste Disposal Method Which Give More Negative Impacts Rather Than Benefits To The Environment (**Moh & Abd Manaf, 2017**). Several Efforts Have Been Initiated By The Government To Cater This Issue In Managing Waste Such As Promoting Recycling Program And Separation Of Waste At Source. However, Such Practices Still Receive Low Participation From The Community Due To Lack Of Awareness On The Importance Of Recycling And Separation At Source. An Inclusive Theory-Based Assessment Is Needed To Test The Level Of Knowledge, Attitude, And Practice Of Public In The Selected Study Area With The Factors Associating The Waste Management Based On Separation Practice (**Ahamad & Ariffin, 2018**).

Prior To Malaysian Government Target In Achieving 22 Percent Of Recycling Rate By The Year 2020 Which Is To Improve The Waste Management System, The Government Necessitates The Separation Of Solid Waste At Source (Sas) Under The Act 672 Through Solid Waste Management And Public Cleansing Management Corporation Which Was Commenced In September 2015 (**Razali *Et AL.*, 2019**). The Same Study By **Razali *Et AL.* (2019)** Indicated Only Several States In Malaysia Have Implemented The Policy Of Household Separation At Source As Have Been Agreed By The Three Main Private Concessionaries Where The States Are Federal Territory Of Kuala Lumpur And Putrajaya, Pahang, Johor, Melaka, Perlis, Negeri Sembilan, And Kedah. The Importance Of Sas Has Been Recognized By **Jpspn (2015)** To Reduce The Amount Of Waste Generated And Transportation To The Landfills, Thus Will Extend Its Lifespan, Minimize The Country's Budget Allocation For Waste Disposal Purpose, Maximize The National Recycling Rate, Prevent The Disposal Of Recyclable Materials And To Preserve The Environment From Degradation.

A Simple Survey Has Been Organized By **Moh And Abd Manaf (2017)** To Identify The Awareness Of Selected Malaysians' Household On The Separation Of Waste Practice And Policy Which Resulted Majority Of The Respondents Are Not Aware About It. The Study Also Revealed The Challenge In Waste Separation Is Mainly Caused By Community Attitude On The Separation Practice Which Eventually Affecting The Action Of Making Such Practice Into Habit. The Society Knowledge, Willingness And Sense Of Responsibility Is Essential As It Depends On How They Understand The Sas Practice As Well As Their Decision To Act For Their Daily Activities (**Moh & Abd Manaf, 2017**). Other Findings Also Discovered That The Low Participation Of Public Towards Sas Is Due To Limited Availability Of Facilities Or Infrastructures For Separation And Recycling Practice (**Moh & Abd Manaf, 2017; Razali *Et AL.*, 2017, 2020**). **Moh And Abd Manaf (2017)** Concluded That The Endless Cooperation And Dedication From The Community, Government, And Other Authorities Are Important To Reduce The Significance Challenge Of Waste Separation Practice In Malaysia.

In Malaysia, The Covid-19 Outbreak Eventually Causes Various Reactions From The Public Especially When The Initial Enforcement Of The Movement Control Order (Mco) By The Prime Minister. As Reported By **Cdc (2020)**, The Contact Through The Contaminated Surface Might Also Transmitted The Covid-19 Virus Although It Is Not A Common Transmission As Person-To-Person Close Contact. There Is A Possibility For The Waste Collection Workers To Be Exposed To The Virus When Touching The Contaminated Surface From The Covid-19 Potential Waste Such As Face Masks, Gloves, Or Tissue Where The Virus Might Remain There, Then Touching Their Own Eyes, Mouth, Or Nose. As Has Been Suggested By **Helps (2020)**, The Covid-19 Potential Waste Must Be Separated From The General Waste At The Household Level, Especially If There Is A Suspected Or Confirmed Case Of Covid-19 In The Household. In Malaysia, The Proper Standard Operating Procedure (Sop) For The Waste Management Workers Has Been Imposed By **Jpspn (2020)** As A Guideline For The Waste Collection And Public Cleansing During This Pandemic.

The Usage Of Face Masks Is Necessary Due To Covid-19 Pandemic To Reduce The Transmission Of Virus And Mandatorily Effective Commenced On 1st August 2020 (**Zolkepli, 2020**). This Created Another Issue Whereby The Face Masks Are Being Disposed Irresponsibly, Not Being Separated With The Other Type Of Waste. Despite The Rise Of Waste Generation During Covid-19 Pandemic, A Statement By The Research And Technology Division Of Swcorp (**Swcorp Aims For 40% Recycling Rate By 2025, 2020**) Depicted That The Amount Of Recycling Rate Shows A Substantial Increase In 2020 Compared To Previous Year With The Total Collection Of 307.63 Tonnes Recycled Materials In Comparison Of 163.15 Tonnes In 2019. This Might Also Be Due To Public Concern On The Hygienic Matter During Covid-19 Pandemic Resulting The Positive Behavioural Change. Thus, It Is Anticipated That The Public Knowledge, Attitudes, And Practices Towards Waste Management Practice During Covid-19 Shows A Promising Level Where The Public Is More Aware Of The Importance Of Control Measures Taken During Covid-19.

The Kap Surveys Have Been Widely Used In The Field Of Public Health And Environmental Studies Since Years Ago To Investigate The Community Understanding And Social-Cultural Value (**Launiala, 1970**). The Survey Is First Introduced In 1950s For Family Planning And Population Studies To Provide Information On The Elements Of Knowledge, Attitude, And Practice As It Proposed That The Knowledge And Attitude Are The Building Blocks For Practice Which Reflected As The Actions (**Ahamad & Ariffin, 2018; Ahmad Et Al., 2015; Launiala, 1970**). According To **Babaei Et Al. (2015)**, Knowledge Is A Form Of Understanding Or Awareness In Which People Attained Through The Education, Learning, Discovering Or Own Experience Whether In Facts, Skills, Or Information. Meanwhile, Attitude Is Someone's Thought, Insight, Belief Or Feeling That Is Driven Into Practice Defined As Actions Or Behavioral Change. It Concluded That The Two Determining Factors For Behavior Of The Community Are Knowledge And Attitude. Other Study Also Found The Positive Relationship Between The Attitude And Knowledge Of Waste Management Where The Profound Knowledge Could Lead To The Gradual Change In Attitudes And Practices (**Badrum & Mapa, 2020**). The Finding Also Deduced The Factors Associating The Kap Are Important For Further Progress And Enhancement Of Solid Waste Management Programs As Well As Policies To The Community.

### **Methodology**

The Assessment Of Knowledge, Attitude, And Practice Of Waste Management Based On Separation Practice During Covid-19 Among Public In Kuala Muda Included Several Major Steps. The Preliminary Step Is The Identification Of The Research Design Where The Sampling Plan Has Been Done To Determine The Location Of The Selected Area For This Study Followed By The Construction Of Research Instrument Which Is The Questionnaire Development. Then, The Constructed Questionnaire Is Validated By The Four Appointed Experts In The Solid Waste Management Area From Both Industry And Academician Background. After The Pilot Study Is Conducted, The Questionnaire Is Amended Before Proceeded With Data Collection Based On The Respondents' Criteria Eligibility In The Selected Study Area. The Data Obtained Is Used For The Statistical Analysis Consists Of Descriptive Analysis Of The Respondents In The Study Area.

This Kap Assessment Is Conducted As A Cross-Sectional Research Which Is Designed To Analyze Data From A Population Or Targeted Participants At A Specific Point In Time By Conducting A Survey Or Opinion Poll. The Sampling Size Is Determined Using A **Yamane (1967)** Formula Where A Total Of 101 Respondents Are Used For Data Analysis From The Sample Collected In This Study. The Assessment Employed The Simple Random Sampling In Which Each Participant In Bandar Amanjaya Is Chosen By Random And Has Equal Chance Of Being

Included In The Sample. This Method Of Sampling Delivers An Unbiased And Better Projection For The Parameters In The Study Population (Singh, 2011).

### Study Area

This Research Was Conducted In Selected Areas In Kuala Muda District In Kedah. Kuala Muda Contains The Highest Population In Kedah Compared To The Other Districts Which Are Approximately 443, 488 Of Total Population With 105, 429 Of Total Households And 135, 237 Of Total Living Quarters (Dosm, 2020). There Are Twelve Districts In Kedah Which Are Kubang Pasu, Kota Setar, Langkawi, Pokok Sena, Padang Terap, Pendang, Yan, Sik, Baling, Kulim, Bandar Baharu, And Kuala Muda (Portal Rasmi Kerajaan Negeri Kedah - Tentang Kedah, 2020).

The Solid Waste Collection For Every Household In Kuala Muda District Is Done By The Appointed Private Concessionary Company, E-Idaman Sdn Bhd. As Kedah Is Among The Seven States That Implemented The Separation Of Waste At Source Under The Act 672, The Waste Collection Has Been Performed Based On The Assigned Schedule. The Characteristics Of Respondents From The Selected Areas Are Based On The Urbanization, The Availability Of The Solid Waste Management Facilities, And The Area Where The Collection Of Waste Has Been Done By E-Idaman Sdn. Bhd. The Selected Area In Kuala Muda Is The Households From Bandar Amanjaya That Adapted Solid Waste Management And Waste Collection By The Concessionary As Illustrated In Figure 1.

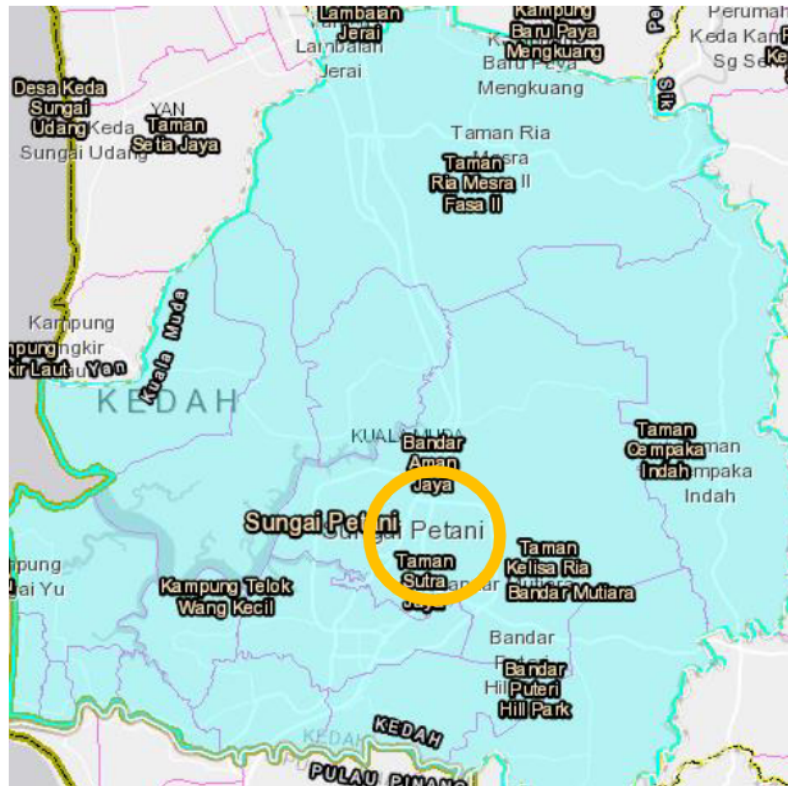


Figure 1: Location Of Study Area In Kuala Muda, Kedah

Source: (Dosm, 2020; Pejabat Daerah Dan Tanah Kedah, N.D.).

The Research Instrument Utilized Is A Self-Administered Structured Questionnaire Which Aims To Achieve The Objectives Of This Assessment. The Questionnaire Was Divided Into Five Sections Including The Socio-Demographic Information Of The Participants, Assessment On The Public Knowledge, Attitude, Practice, And Recommendation Of The Public In Kuala Muda Towards The Waste Management Based On Separation Practice During Covid-19 Pandemic. A Total Of 31 Questions Were Constructed For Assessing The Kap Of The Respondents In This Study. The Knowledge Section Consisted Of 11 Close Ended Questions, The Next Section Of Attitude, The Respondents Were Given 10 Questions And The Subsequent Section, Which Is Practice Assessment, There Were 10 Questions Involved. The Questions Were Assigned With Scores Where For The Negative Statements

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The Score Will Be Reversed. The Questionnaire Was Provided In Both Malay And English Language Versions As The Target Of Participants Are The Public Which Have Various Demographic Backgrounds.

The Method Of Data Collection For This Study Is Only Through Online Platform As Face-To-Face Encounter Was Not Feasible Due To The Situation That The Rise Of Covid-19 Cases In The Selected Area. Therefore, The Questionnaire Was Disseminated Using "Google Form" Link. The Respondents Were Also Given Sufficient Time To Answer The Survey Which Takes Around 10 To 15 Minutes. The Respondents Who Were Agreed To Participate In The Survey Will Tick The Consent's Form Indicating Their Voluntary Participation And Willingness To Involve In The Assessment, Eventually Proceeded With Answering The Items In The Questionnaire. The Respondents Were Also Informed About The Confidentiality Assurance Of The Information Given For A Research Purpose. This Is Supported By The Approval From The Kulliyah Of Science.

### Results

From A Total Of 101 Respondents That Contributed To This Study, Most Of Them Were Female With 71.3%, A Total Of 72 Respondents And Another 28.7% With A Total Of 29 Respondents Were Male. For The Age Group Characteristic By Years, Majority Of The Respondents Is Between The Ages Of 20 To 29 With 66.3% (N=67), Followed By Ages Of 30 To 39 And 40 To 49, 9.9% With The Same Frequency (N=10), 50 And Above, 7.9% (N=8) As Well As Below 20 Years Old, 5.9% (N=6). Besides, 59.4% (N=60) Of The Respondents Are Bachelor's Degree Holder, Pursued By 18.8% (N=19), 17.8% (N=18) And 4% (N=4) Are Diploma, Certificate And Master Or Higher Education Level, Respectively.

Next, For The Employment Status, It Is Illustrated That Almost Half Of The Respondents Are Students With 49.5% (N=50), Followed By Government Employees, 21.8% (N=22), Private Sectors, 13.9% (N=14), Respondents Who Are Self-Employed, 9.9% (N=10) And Housewives Accounted For 5% (N=5) Of This Study. The Household Monthly Income Range Is Divided Into The Categories Assigned In Malaysia (Department Of Statistics Malaysia, 2020) Which Most Of The Respondents Are "Bottom 40" (B40) Category, 64.4% (N=65), Continued With "Middle 40" (M40), 32.7% (N=33) And The Least Category Which Is "Top 20" (T20) With Only 3% (N=3). Finally, The Demographic Profile Of The Respondents Based On Type Of House Indicates That More Than Half Of The Respondents, 56.4% (N=57) Reside In The Landed Properties Such As Terrace, Semi-Detached Or Bungalow. Meanwhile, The Other 38.6% (N=39) And 5% (N=5) Of The Respondents Reside In Subdivided Properties Such As Flat, Apartment Or Condominium And Their Own-Build House, Respectively.

There Are Three Sections Of The Descriptive Analysis Which Are Specified Into Knowledge, Attitude, And Practice Of Waste Management Based On Separation Practice During Covid-19. The Items For Each Section Of The Questionnaire Are Designated With Code And Presented In The Relative Frequency, Percentage, And Mean Score Of Each Item. The Level Of Knowledge, Attitude, And Practice Is Indicated By The Frequency, Percent Score, Mean, Minimum And Maximum Score Range.

Based On Table 4.3, It Indicates That Most Of The Respondents Answered Correctly For Almost Each Item In The Knowledge Section With Overall Mean Score Of 1.72. The Items That Demonstrate The Highest Number Of Respondents Answered Correctly Are Item K03 And K11 With Mean Score Of 1.95, Where 97% (N=98) Of The Respondent Know That The Recyclable Waste Need To Be Separated According To Groups As Assigned By The Government (Jpspn, 2015) Such As Plastics, Paper, And Others. The Respondents Also Acknowledge That Due To Covid-19 Pandemic, The Consumption Of Personal Single-Used Products Such As Face Masks, Disinfection Wipes Or Tissues, Sanitizers And Gloves Is Increasing Tremendously. Besides, 92.1% (N=93) Of The Public In Bandar Amanjaya Recognize The Kitchen Waste, Food Waste, Contaminated Materials And Disposal Diapers Are The Residual Solid Waste On The Item K02 (Mean Score=1.88). The Same Percentage Of Respondents Acknowledge The Benefit Of Separation Of Waste At Source In Waste Recycling And That It Can Reduce The Daily Waste Disposal To The Treatment Facility Or Landfills For Item K05, As Well As Knowledge In Proper Waste Management During This Pandemic Is Vital To Prevent The Virus Spread Stated In Item K08.

Table 1: Knowledge Of Waste Management Based On Separation Practice During Covid-19

Item	Frequency N (%)	Mean
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	Y	N	Dnk	
K01	88 (87.1)	0 (0)	13 (12.9)	1.87
K02	93 (92.1)	4 (4.0)	4 (4.0)	1.88
K03	98 (97.0)	2 (2.0)	1 (1.0)	1.95
K04	86 (85.1)	1 (1.0)	14 (13.9)	1.84
K05	93 (92.1)	1 (1.0)	7 (6.9)	1.91
K06*	51 (50.5)	28 (27.7)	22 (21.8)	0.77
K07	41 (40.6)	16 (15.8)	44 (43.6)	1.25
K08	93 (92.1)	4 (4.0)	4 (4.0)	1.88
K09	86 (85.1)	3 (3.0)	12 (11.9)	1.82
K10	88 (87.1)	7 (6.9)	6 (5.9)	1.80
K11	98 (97.0)	1 (1.0)	2 (2.0)	1.96
<b>Overall Mean Score</b>				<b>1.72</b>

\*Note That The Score Is Reversed For Negative Item | Y: Yes (2), N: No (0), Dnk: Do Not Know (1)

There Is Only One Negative Statement In The Knowledge Part Where Most Of The Respondents Answered Yes To The Item K06 With Mean Score Below Than 1 Which Is 0.77, Most Probably 50.5% (N=51) Of The Respondents Unfortunately Answered The Item Incorrectly Thinking It Is A Positive Statement. Majority Respondents Might Not Acknowledge That The Separation Of Solid Waste At Source Will Actually Reduce The Country’s Allocation Or Budget For Solid Waste Disposal. This Is One Of The Main Reasons For The Implementation Mandatory Separation Of Waste At Source In Malaysia (**Kpkt, 2015**). Additionally, A Mean Score Of 1.25 Is Obtained For Item K07, Where 43.6% (N=44) Of The Respondents Do Not Know That Under The Solid Waste And Public Cleansing Management Act 2007 (Act 672), It Is An Offence For The Household That Failed To Oblige With The Waste Separation At Source Mandatory (**Kpkt, 2015**).

Table 2 Denotes The Level Of Knowledge For The Public In Bandar Amanjaya On The Separation Practice During Covid-19 Where The Respondents Have High Level Of Knowledge With Mean Total Score Of 18.94, Indicating Majority Respondents With 80.2%, A Total Of 81 Respondents Are Within The Level Of High Knowledge From The Sample Size. Only One Respondent, 1% Falls Into The Poor Level With The Total Score Of 13 With A Slight Difference To The Moderate Level, While The Other 18.8% (N=19) Are Having Moderate Level Of Knowledge Of Waste Management Based On Separation Practice During Covid-19.

Table 2: Level Of Knowledge

Knowledge		
Level	Frequency N (%)	Maximum And Minimum Score
Poor	1 (1.0)	13
Moderate	19 (18.8)	14-17
<b>High</b>	<b>81 (80.2)</b>	<b>18-22</b>
<b>Mean Total Score = 18.94, Sd = 1.832</b>		

Table 3 Summarized The Attitude Of The Respondents In Bandar Amanjaya With An Overall Mean Score Of 3.79. Based On The Result Acquired, It Is Revealed That Most Of The Respondents Have Positive Attitudes For Item A01 And A03 With A Mean Score Of 4.17. For Item A01, 62.4% (N=63) And 21.8% (N=22) Of The Respondents Strongly Agreed And Agreed Accordingly That The Practice Of Safe Waste Disposal Is Important While The Other

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14.9% (N=15) Are Strongly Disagreed With The Statement And 1% Remained Not Sure. The Statement About Covid-19 Potential Waste, Most Of The Respondents Appeared To Have Positive Attitude For Item A04 And A07, That 57.4% (N=58) Of Them Strongly Agreed That The Covid-19 Potential Waste Need To Be Covered Properly When Throwing Out And 48.5% (N=49) Of Them Strongly Agreed To Imply The Separation Of Covid-19 Potential Waste Such As Masks, Tissues, Or Gloves From The General Household Waste Is Important. Item A10 Suggests The Lowest Mean Score For Attitude Section With 3.37, Where The 27.7% (N=28) Respondents Might Have Marginally Moderate Attitude When Comparing Their Waste Separation Practice During Pandemic And Before Covid-19 Pandemic. For The Similar Item, Most Of Respondents Which Is 34.7% (N=35) Are Not Sure About Their Attitude. However, Based On Item A05, Majority Respondents Strongly Agree And Agree With 37.6% (N=38) And 39.6% (N=40), Respectively That They Concern For The Improper Waste Management During Covid-19, It Could Lead To The Spread Of Virus And Harmful To The Community.

Table 3: Attitude Of Waste Management Based On Separation Practice During Covid-19

Item	Frequency N (%)					Mean
	Sa	A	Ns	D	Sd	
A01	63 (62.4)	22 (21.8)	1 (1.0)	0 (0)	15 (14.9)	4.17
A02*	4 (4.0)	10 (9.9)	18 (17.8)	51 (50.5)	18 (17.8)	3.68
A03*	1 (1.0)	6 (5.9)	8 (7.9)	46 (45.5)	40 (39.6)	4.17
A04	58 (57.4)	19 (18.8)	8 (7.9)	4 (4.0)	12 (11.9)	4.06
A05	38 (37.6)	40 (39.6)	6 (5.9)	5 (5.0)	12 (11.9)	3.86
A06	23 (22.8)	37 (36.6)	22 (21.8)	8 (7.9)	11 (10.9)	3.52
A07	49 (48.5)	30 (29.7)	8 (7.9)	1 (1.0)	13 (12.9)	4.00
A08*	12 (11.9)	8 (7.9)	28 (27.7)	31 (30.7)	22 (21.8)	3.43
A09	25 (24.8)	37 (36.6)	25 (24.8)	4 (4.0)	10 (9.9)	3.62
A10	19 (18.8)	28 (27.7)	35 (34.7)	9 (8.9)	10 (9.9)	3.37
<b>Overall Mean Score</b>						<b>3.79</b>

\*Note That The Score Is Reversed For Negative Item | Sa: Strongly Agree (5), A: Agree (4), Ns: Not Sure (3), D: Disagree (2), Sd: Strongly Disagree (1)

Table 4 Below Illustrates The Level Of Attitude For Respondents In Bandar Amanjaya. It Indicates That The Respondents In Bandar Amanjaya Have Moderate Attitude Of Waste Management Based On Separation Practice During Covid-19 With A Mean Total Score Of 37.88. However, There Is Only A Slight Difference Of The Percent Respondents For High Level And Moderate Level With 40.6% (N=41) And 44.6% (N=45), Accordingly. Even Though The Respondents Have Moderate Level Of Attitude, They Are Prone To High Level Instead Of Poor Level. There Is Only 14.9% (N=15) Of The Respondents Included Into The Poor Level Of Attitude.

Table Error! No text of specified style in document.: Level Of Attitude

Attitude		
Level	Frequency <i>N</i> (%)	Maximum And Minimum Score
Poor	15 (14.9)	19-29
<b>Moderate</b>	<b>45 (44.6)</b>	<b>30-40</b>
High	41 (40.6)	41-50
<b>Mean Total Score = 37.88, Sd = 7.603</b>		

Table 5 And Table 6 Present The Descriptive Data For Each Item In Attitude Section And The Level Of Attitude Towards Waste Management Based On Separation Practice During Covid-19 Among Public In The Selected Study Area In Kuala Muda. The Practice Of The Respondents From The Selected Area In Kuala Muda Is Demonstrated As In Table 5 Where The Overall Mean Score Is Reported As 2.84 Which Is Quite High Compared To Maximum Score For Each Item Is 4. The Mean Score For Item P03 Exemplifies The Highest Value, Which Is 3.64, Suggesting That The Respondents Did Not Dispose Waste In The Drain Or Gutter At Their House During Covid-19 With The Highest Percent, 74.3% (N=75) Of The Respondents Never Did The Practice Stated.

Table 5: Practice Of Waste Management Based On Separation Practice During Covid-19

Item	Frequency <i>N</i> (%)				Mean
	A	O	S	N	
P01	12 (11.9)	25 (24.8)	54 (53.5)	10 (9.9)	2.39
P02	14 (13.9)	36 (35.6)	43 (42.6)	8 (7.9)	2.55
P03	8 (7.9)	17 (16.8)	35 (34.7)	41 (40.6)	1.92
P04*	1 (1.0)	8 (7.9)	17 (16.8)	75 (74.3)	3.64
P05	14 (13.9)	28 (27.7)	39 (38.6)	20 (19.8)	2.36
P06*	7 (6.9)	10 (9.9)	22 (21.8)	62 (61.4)	3.38
P07	32 (31.7)	40 (39.6)	19 (18.8)	10 (9.9)	2.93
P08	55 (54.5)	32 (31.7)	10 (9.9)	4 (4.0)	3.37
P09	20 (19.8)	38 (37.6)	33 (32.7)	10 (9.9)	2.67
P10	38 (37.6)	47 (46.5)	12 (11.9)	4 (4.0)	3.18
<b>Overall Mean Score</b>					<b>2.84</b>

\*Note That The Score Is Reversed For Negative Item | A: Always (4), O: Often (3), S: Seldom (2), N: Never (1)

For Separation Of Waste Practice During Covid-19, Which Is Expressed In Item P02, P05, P07, And P09, Various Answers Have Been Given By The Respondents. 42.6% (N=43) Of The Respondents Seldomly Separate The Residual Waste And Recyclable Waste As Required By Government (P02), While 35.6% (N=36) Practice It Often, Followed By 13.9% (N=14) Always Do The Practice And The Other 7.9% (N=8) Never Separate The Waste. During Covid-19, The Particular Separation Of Covid-19 Potential Waste Such As Masks, Tissues, Or Gloves From The General Household Waste Has Been Done By Majority Of The Respondents Which Indicated 19.8% (N=20), 32.7% (N=33), And 37.6% (N=38) As Always, Seldom, And Often Practice It, Respectively. The Lowest Mean Score Is Presented In The Table 5 For Item P03 That Most Of The Respondents Never Participate In The Separation Of Waste Activity Or Campaign In Their Residential Area Contributed To 40.6% (N=41) Of The Respondents In The Selected Area.



From Table 6, It Is Disclosed That The Level Of Practice For The Respondents In The Selected Study Area In Kuala Muda Is Moderate With A Total Percent Of 58.4 (N=59) And Mean Total Score 28.39. It Is Followed By Poor Level Of Practice With 21.8% (N=22) And High Level Which Consist Of 19.8% (N=20) Of The Respondents. Overall, The Descriptive Analysis For The Kap Level Is Concluded That The Respondents In Bandar Amanjaya Have High Level Of Knowledge, And Moderate Level Of Attitude And Practice For Waste Management Based On Separation Practice During Covid-19. The Study By **Laor *Et Al.* (2018)** Also Depicted The Same Finding That The Respondents Have High Level Of Knowledge With Moderate Level Of Attitude And Practice On The Solid Waste Management In The Selected Area Of Northern Thailand.

Table 6: Level Of Practice

Practice		
Level	Frequency <i>N</i> (%)	Maximum And Minimum Score
Poor	22 (21.8)	15-23
<b>Moderate</b>	<b>59 (58.4)</b>	<b>24-32</b>
High	20 (19.8)	33-40
<b>Mean Total Score = 28.39, Sd = 5.085</b>		

### Conclusion

In Conclusion, This Research Was Conducted Successfully Among The 101 Respondents From The Selected Area In Kuala Muda Involved To Assess The Level Of Kap For The Waste Management Practice Based On Separation Practice During Covid-19 Where It Is Depicted That The Respondents In The Study Area Have High Level Of Knowledge, Followed By A Moderate Level Of Attitude And Practice.

In Accordance With The Findings Of This Study, It Is Suggested That The Public Should Be Inculcated On The Importance Of Making The Separation Of Waste At Source Into Daily Habit. Besides, The Facilities And Supporting Amenities Also Need To Be Improved By The Authority To Enhance The Participation Of Public In Separation Of Waste In The Study Area. Most Of The Respondents Also Recommended Promoting Actively About The Separation Of Waste During Covid-19 And Ways Or Procedures On Waste Separation Should Not Be Too Complicated For The Public To Put Into Practice. It Is Also Vital For The Authority To Broaden The Area Of Solid Waste Management System In Rural Area.

Additionally, It Is Proposed For The Survey Model Of Kap Is Utilized In Other Study Of Waste Management Based On Separation Practice With Bigger Sample Size Or Other Institutions Involvement To Compare The Significant Findings And Effectiveness Of The Study. The Quality Of This Study Can Also Be Improved By Preparing The Survey Using Another Study Model Such As Theory Of Planned Behavior To Assess The Public Understanding And Practice On The Same Issue.

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